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THE KITCHEN GARDEN is at once the most humble and the most useful department of horticulture. It can no more be allowed to stand still than the sun himself. Luckily, (or unluckily,) man must eat; and, omniverous as he is, he must gather food from both the animal and the vegetable kingdom.

Now there are, we trust, few of our readers who need an argument to prove what a wide difference is very often found between vegetables grown in different gardens; how truly the products of one shall be small, tough and fibrous, and those of another, large, tender and succulent. Sometimes the former defects are owing to bad culture, but more frequently to *unsuitable soil.* It is to this latter condition of things that we turn, with the hope of saying something which, if not new, shall at least be somewhat useful, and to the point.

Nothing, in any temperate climate, is easier than the general cultivation of vegetables in most parts of the United States. With our summer sun, equal in heat and brilliancy to that of the equator, we can grow the beans of Lima, the melons of the Mediterranean, the tomatoes and egg-plants of South America, without hotbeds, and with such ease and profusion that it fills a newly arrived English or French gardener with the most unqualified astonishment. Hence, in all good soils, with a smaller amount of labor than is elsewhere bestowed in the same latitudes, our vegetables are produced in the most prodigal abundance.

But now for the exceptions. Every man cannot "locate" himself in precisely that position where the best soil is to be found. Circumstances, on the contrary, often force us to build houses, and make kitchen gardens, where Dame Nature evidently never contemplated such a thing; where, in fact, instead of the rich, deep accumulations of fertile soil, that she frequently offers us in this country, she has only given us the "short commons" allowance of *sand* or *clay.*

The two kinds of kitchen gardens among us, which most demand skill and intelligent labor, are those which are naturally too sandy or too clayey. It is not difficult, at a glance, to see how these might be, and ought to be treated to improve them greatly. But we have observed—such is the force of habit—that nine-tenths of those who have gardens of this description, go on in the same manner as their neighbors who have the best soil,—manuring and cultivating precisely in the ordinary way, and then grumbling in quite a different

mode about short crops, and poor vegetables, instead of setting about remedying the evil in good earnest.

The natural remedy for a heavy clay soil in a kitchen garden, is to mix sand with it. This acts like a charm upon the stubborn alumina, and, allowing the atmospheric influences to penetrate where they were formerly shut out, gives a stimulus, or rather an *opportunity*, to vegetable growth, which quickly produces its result in the quantity and quality of the crops.

But it not unfrequently happens that sand is not to be had abundantly and cheaply enough to enable the proprietor of moderate means to effect this beneficial change. In this case, we propose to the kitchen gardener to achieve his object by another mode, equally efficient, and so easy and cheap as to be within the reach of almost every one.

This is, to alter the texture of too heavy soils, by *burning* a portion of *the clay*.

Very few of our practical gardeners seem to be aware of two important facts. First, that clay, when once burnt, never regains its power of cohesion, but always remains in a pulverised state; and therefore is just as useful, mechanically, in making a heavy soil light, as sand itself. Second, that burnt clay, by its power of attracting from the atamosphere those gases, which are the food of vegetables, is really a most excellent manure itself. Hence, in any clayey kitchen garden, where brush, faggots, or refuse fuel of any description can be had, there is no reason why its cold compact soil should not be turned at once, by this process of burning the clay, into one comparatively light, warm and productive.*

The difficulty which stands in the way of the kitchen gardener, who has to contend with a very light and too sandy soil, is its want of capacity for retaining moisture, and the consequent failure of the summer crops.

In some instances, this is very easily remedied. We mean in those cases where a loam or heavier subsoil lies *below* the surface. Trenching, or subsoil-ploughing, by bringing up a part of the alumina from below, and mixing it with the sand of the surface soil, remedies the defect very speedily. But, where the subsoil is no better than the top, or perhaps even worse, there are but two modes of overcoming this bad constitution of the soil. One of those, is to grasp the difficulty at once by applying a coat of clay to the surface of the soil, and mixing it with the soil as you would manure; the other, (a less expensive and more gradual process,) is to manure the kitchen garden every year with compost, in which clay or strong loam forms a large proportion.

It may seem, to many persons, quite out of the question to attempt to ameliorate sandy soils by adding clay. But it is surprising how small a quantity of clay, thoroughly intermingled with the loosest sandy soil, will give it a different texture, and convert it into a good loam. And even in

* A simple mode of burning clay in the kitchen garden is the following: Make a circle eight or ten feet in diameter, by raising a wall of sods a couple of feet high. Place a few large sticks loosely crosswise in the bottom, and upon those pile faggots or brush, and set fire to the whole. As soon as it is well lighted, commence throwing on lumps of clay, putting on as much at a time as may be without quite smothering the fire. As soon as the fire breaks through a little, add more brush, and then cover with more clay, till the heap is raised as high as it can be conveniently managed. After lying till the whole is cold, or nearly so, the heap should be broken down and any remaining lumps pulverized, and the whole spread over the surface and well dug in

"As an example," says Loudon, "of the strong clayey soil of a garden having been improved by burning, we may refer to that of Willersly Castle, near Mattock, which the gardener there, Mr. Stafford, has rendered equal in friability and fertility to any garden soil in the country. 'When I first came to this place,' says Mr. Stafford, 'the garden was, for the most part, a strong clay, and that within nine inches of the surface; even the most common article would not live on it; no weather appeared to suit it; at one time being covered by water; at another time rendered impenetrable by being too dry. Having previously witnessed the good effects of burning clods, I commenced the process, and produced, in a few days, a composition three feet deep, and equal, if not superior, to any soil in the country.'"—*Suburban Horticulturist.*

sandy districts, there are often valleys and low places, quite near the kitchen garden, where a good stock of clay lies, (perhaps quite unsuspected,) ready for uses of this kind.

In the *Journal of the Agricultural Society of England*, a case is quoted (vol ii., p. 67,) where the soil was a *white sand*, varying in depth from one to four feet; it was so sterile that no crops could ever be grown upon it to profit. By giving it a top-dressing of clay, at the rate of 150 cubic yards to the acre, the whole surface of the farm so treated was improved to the depth of ten or twelve inches, so as to give excellent crops.

Since a soil, once rendered more tenacious in this way, never loses this tenacity, the improvement of the kitchen garden, where economy is necessary, might be carried on *gradually*, by taking one or two compartments in hand every year; thus, in a gradual manner, bringing the whole surface to the desired condition.

A great deal may also be done, as we have just suggested, by a judicious system of manuring very sandy soils. It is the common practice to enrich these soils precisely like all others; that is, with the lighter and more heating kinds of manures; stable dung, for example. Nothing could be more injudicious. Every particle of animal manure used in too light a soil ought, for the kitchen garden, to be composted, for some time previously, with eight or ten times its bulk of strong loam or clay. In this way, that change in the soil, so much to be desired, is brought about; and the whole mass of clay-compost, made in this way, is really equal in value, for such sandy soils, to the same bulk of common stable manure.

Whatever the soil of a kitchen garden, our experience has taught us that it should be *deep*. It is impossible that the steady and uniform moisture at the roots, indispensable to the continuous growth of many crops, during the summer months, can be maintained in a soil which is only *one spade* deep. Hence, we would *trench* or *subsoil-plough* all kitchen gardens, (taking care, first, that they are well drained,) whether sandy or clayey in texture. We know that many persons, judging from theory rather than practice, cannot see the value of deepening soils already too porous. But we have seen its advantages strongly marked in more than one instance, and therefore recommend it with confidence. It is only necessary to examine light soils, trenched and untrenched, to be convinced of this. The roots in the former penetrate and gather nourishment from twice the cubic area that they do in the former; and they are not half so easily affected by the atmospheric changes of temperature.

Old gardens, that have been long cultivated, are greatly improved by trenching and reversing the strata of soil. The inorganic elements, or mineral food, of plants often become so much exhausted, in long cultivated kitchen gardens, that only inferior crops can be raised, even with abundant supplies of animal manures. By turning up the virgin loam of the subsoil, and exposing it to the action of the atmosphere, its gradual decomposition takes place, and fresh supplies of lime, potash, etc., are afforded for the vigorous growth of plants.

We have only room for a single hint more, touching the kitchen garden. This is, to recommend the annual use of *salt*, in moderate quantities, sown broadcast over the whole garden early in the spring, and more especially on those quarters of it where vegetables are to be planted which are most liable to the attacks of insects that harbor in the earth. We are satisfied that salt, spread in this way, before vegetation has commenced, or the earth is broken up for

sowing seeds, at the rate of ten bushels per acre, is one of the best possible applications to the soil.

It destroys insects, acts specifically on the strength of the stems, and healthy colour of the foliage of plants, assists porous soils in collecting and retaining moisture, and is an admirable stimulant to the growth of many vegetables. In all the atlantic states, where it is easily and cheaply procured, it ought, therefore, to form an annual top-dressing for the whole kitchen garden.

ON THE PRINCIPLES OF VITALITY AND LONGEVITY IN FRUIT TREES.

BY PROFESSOR TURNER, ILLINOIS COLLEGE.

THE following is one of the most original and interesting articles that we have had the pleasure of laying before our readers. We shall be glad to receive the remainder of our correspondent's views which he promises us in time for next month, and will delay any comments until we have his theory complete before us.—ED.

MR. DOWNING—DEAR SIR:—I have read with much interest, the various discussions on fruit trees and their diseases, in the several numbers of the Horticulturist. I have delayed the correspondence which I sometime since promised, partly for want of time, and partly in order to avail myself of the advantage of a tour through northern Illinois and Iowa, to examine nurseries, and converse with practical nurserymen and fruit-growers, so as either to confirm my theory by facts, or reject it. The result is, that my views, derived, 1st, from the necessary laws of vegetable physiology, and 2d, from the results of some ten years experimenting on those principles in my own garden and grounds, have been entirely confirmed, by the experience of intelligent practical observers with whom I have conversed, that I am willing to suggest them for the serious consideration of the editor and readers of the Horticulturist. I may, indeed, still be in the wrong; but if so, how shall I become right unless through the light illuminated by the editor and able correspondents of the Horticulturist. Meantime your readers will allow me to write with the positiveness of one fully convinced in his own mind, even though those convictions may rest on a frail foundation.

My great object will be to prove that the jacknife and handsaw of the nurseryman, are by far the greatest enemies of all fruit trees in this part of the west, and the producers of more hereditary and annual diseases among our fruit trees than all other causes combined. Their mischief is, of course, effected, first, by their use in grafting, and second, by their use in pruning.

In order to set this matter in its true light, it will be necessary to advert to the true PRINCIPLE OF VITALITY and LONGEVITY in all trees, and to the effects of SOIL and SUN on hereditary DISEASES and DISEASED GROWTH.

1. PRINCIPLES of VITALITY and LONGEVITY.—After all that has been said on the subject, I cannot resist the impression that the essential elements of the highest degree of both vital power and of longevity, are placed by nature in the seed, and the seed alone. It alone of all other parts of the tree, contains within itself, in the highest degree of perfection, all parts of the embryo tree, trunk, roots and top; and these, when produced from a healthy seed, have both a vital power and a capacity for lon-

gevity which can never be produced from any other source. By vitality and vital power, I mean tendency to a vigorous and healthy growth, and by power or capacity of longevity, I mean tendency to a protracted continuance of that healthful growth through the longest series of years of which the tree is, in its own nature, capable of living.

The facts which might be adduced in proof of this position, are quite too numerous and too well known to need specification.

The highest power of vitality in a tree itself, produced from the seed, is, usually, at least, the neck of the tree, as some physiologists have called it, or precisely that point where the seed lies when it begins to throw its top upward and its root downward. At this point the tree manifests its vital power by throwing up vigorous suckers or shoots whenever its life is endangered above ground, and often from unknown causes. So much does the vital power of this part of the tree exceed all other parts, that it is a fact well known to root grafters in the west, that one inch of root near this point is as effective for their purpose as twice that length of root remote from this vital point. Hence, too, suckers torn from old trees near this point, manifest a constant tendency to prolong a lacerated and diseased vitality by throwing out roots and throwing up suckers all around it. It is, in fact, an effort of nature to heal a mortal wound, analagous to the fabled story of the serpent's heads of old.

The vital power of the seedling tree diminishes as you recede from this point, both in distance and in growth—both upwards and downwards, and probably its power of longevity too. That is, one inch of root, or a single bud, taken from an old tree, in which the original vital force of the seed is expanded into long roots and thousands of buds, have each less vital power and less capacity of longevity than the same length of root and the same kind of bud taken from a young tree, the original vital force of whose seed has been expanded only in a few buds and a few roots; and the more intimate their connection with this vital point, the neck of the tree, the greater the vital power, and vice versa. This, in case of the root, is determined mainly by simple distance, and in case of the top, by distance combined with vigor of yearly growth. That any other part of a tree could be forced to exhibit the same laws and the same power of vitality and longevity as the seed does, I cannot believe.

An eminent writer has recently attempted to prove that the bud is as perfect an organ of reproduction as the seed, and that it has in itself all the appropriate elements and organic forces and powers of the seed itself —indeed that it is nothing but a seed "prepared for one set of circumstances," while the real seed differs from it only by being prepared for different circumstances. Now what proof is there of all this? Why, simply, that a bud can, by art, be made to grow and form a tree. But has it ever been proved that it can, under any circumstances, be made to exhibit the same power of either vitality or longevity as a seed from the same tree? By analagous principles of art, a slip from a man's forehead may be turned down and made to grow into a nose: and yet foreheads are not noses prepared for a "peculiar set of circumstances," nor yet nature's seed for noses; and if all noses were thus produced by art, it is probable that diseased noses would soon become as common as diseased trees now are. Facts are abundant to prove that the proper natural vital force and power of longevity of a given tree is not found in any bud or scion,

or in any other part of the tree, whatever, but that special part prepared by nature for the express purpose of continuing the vitality and longevity of the species. And there are, also, enough facts to suggest, at least, that this original vital force in the seed diffuses itself with the growth of the tree in the manner above indicated, and to render this view worthy of the careful observation and attention of all naturalists and practical fruit growers. For if these principles be correct, it follows, of course, that every time a seedling tree is divided or mutilated, either in top or root, its natural life is also, all other things being equal, proportionally divided, mutilated or shortened. On these principles, if the top of a tree be wholly cut off, a sprout from the root or neck can possess only a part of the natural vital force or longevity appropriate to that tree: and although obvious considerations will make the new shoot grow more vigorously for a time, it will finally die sooner than the original unharmed tree would have done in its place. But if we take nothing but a scion or a piece of root, or a single bud from a tree, we have only a small part of the original vital force of the seed; and this state is, at this moment, full of facts from one end to the other, to show that the actual longevity is, in all such cases, greatly diminished. The principle here maintained is, that *every time the seedling tree is divided, whether in root or top, its natural longevity and appropriate vital force, derived from the seed, is proportionally divided, abstracted and shortened;* and we fully believe that some of the worst forms of hereditary, and also of annual diseases, flow from a succession of such mutilations through a series of generations, or are produced by an effort of nature to resist and repair this interference with her natural processes, as we shall hereafter show.

In view of these positions, two things should be remembered: first, that there are trees, vines and shrubs, the natural vital force of whose roots, necks or trunks produced from seed, is so great, that they for ages continue to throw up shoots, and thus continue their natural life to so great a length of time, that even if the same general law holds in reference to them, it can never probably be ascertained, or if ascertained, would be of no practical importance. When a shrub, or vine, or tree, has the power of continuing its natural life, or of unfolding the vital force of the original seed by shoots, layers, or otherwise, through hundreds and thousands of years, two things are true: one generation of men do not live long enough to ascertain whether the seedlings of such plants will outlive the cuttings or layers taken from them, though in all probability they would; and second, the shortened and mutilated life is long enough for all practical purposes at least, whatever may be true in theory. It is not only difficult but useless to study the laws of longevity of such plants, as for example are the grape, currant, and many of our forest trees and shrubs. But when the natural life of a valuable seed does not exceed fifty or a hundred years, it becomes of the highest importance to the cultivator to ascertain the laws and principles upon which that life is necessarily diminished and shortened, especially if such shortening is liable to be great, and also attended by incurable hereditary and chronic diseases throughout the entire life of many of the thus mutilated trees.

Suppose, for example, the natural life of the apple seedling one hundred years. Suppose that the most careful grafting or budding into an entire seedling stock still diminishes the natural life to seventy-five years on an average: this, considering the importance of the supposed change, is tole

rable. But suppose that by a further mutilation and division of a seedling root into some twenty pieces, the natural vital power of the original seed is divided into as many parts, giving an average longevity of only twenty years, or even far less than that; this, surely, is intolerable; and yet this intolerable condition of things is the real condition of one half the best apples, and almost all the best pears in this state. A good judge could tell how an orchard fifteen years old, in this state, was propagated and grafted, simply by riding past it. Trees made from buds alone, will die out in large quantities the first five years—those made of slips of root two or three inches long, will be generally gone in fifteen or twenty years, while those put upon larger pieces, or upon the tap-root of a seedling, or upon a sprout from the neck of a vigorous tree, will rarely live over twenty-five years.

Multitudes of apple trees in this vicinity, which have been mutilated and grafted on sprouts and pieces of roots, through several generations of trees, have come into the same state that most of our pears, so treated, have already attained, viz: a condition of either hereditary or chronic disease, which exposes them to perish suddenly, just as the pear does, even when ten or twelve inches through, by what is called the "sun-blight," "frozen sap-blight," &c., &c., and if the same processes of grafting should be continued as long upon the apple as they have been upon the pear, I cannot doubt that it will become as difficult to make our grafted apples live to twenty years of age, as it is now to make our pears live that length of time.

So far as facts have been made public, I should suppose that the practical results of this mutilation in grafting, were developing their true nature more rapidly here than in any other part of the Union, or at least far more strikingly: and this, too, would be naturally expected; for in a soil so excessively rich as this, all trees come to maturity and decay more rapidly than on a poor soil. This is true of almost all our forest trees. Moreover a rich soil operates to hasten the development of chronic and hereditary diseases in trees, by the same law that high living tends to the same result in the human family. It seems to be a law of universal nature, that plethora and surfeit tend sometimes to produce, that is, to originate disease, while it always tends to hasten the development of all diseased tendencies, while a barely sufficient diet often postpones the fatal hour both in the animal and vegetable world. Starvation also, doubtless, produces the same results as plethora. Hence wrong management and diseased tendencies may be expected to show their final result soonest on the richest and on the poorest soils—that is where there is the greatest and the smallest amount of the appropriate food for a given plant.

In addition to the above considerations respecting the vitality of seeds and the effect of soil, &c., it ought not to be forgotten that nature has appointed a certain equilibrium between the root and the top, and also between the length of the trunk and the top, which cannot be disturbed with impunity. There are certain laws, also, connecting the shape of the top with that of the root, of the greatest importance to the nurseryman—all of which are more or less disturbed and thwarted by the existing absurd modes of grafting and pruning. In my next paper I shall attempt to apply the above principles to the well known blight in the pear and the cherry, in the west, and the present wretched condition of many of our apple orchards.

Respectfully yours, J. B. TURNER.

Illinois College, Feb. 14, 1848.

NOTES ON SOUTHERN FRUIT.

BY ROB'T CHISHOLM, BEAUFORT, S. C.

DEAR SIR:—Not seeing described in your work on fruits, several that I have, and others that are cultivated in this neighborhood, I have thought some account of them might prove acceptable to you.

I must first mention two or three figs, which are cultivated here, and the merits of which are not, perhaps, known to you. The first of these, I cannot give you the name of with positive certainty, but I believe it is the *Alicante*. It is a most abundant bearer, commencing to ripen its fruit about the 10th to 15th of July, seven to ten days earlier than the white or lemon fig, and continuing, in strong clay lands, to bear abundantly, until a heavy black frost, which usually happens here about the middle of November. I send you a double outline of the fig. The larger outline is the form of the fruit of the *first* crop, but the inner, dotted outline is about the normal form of of the fruit generally.

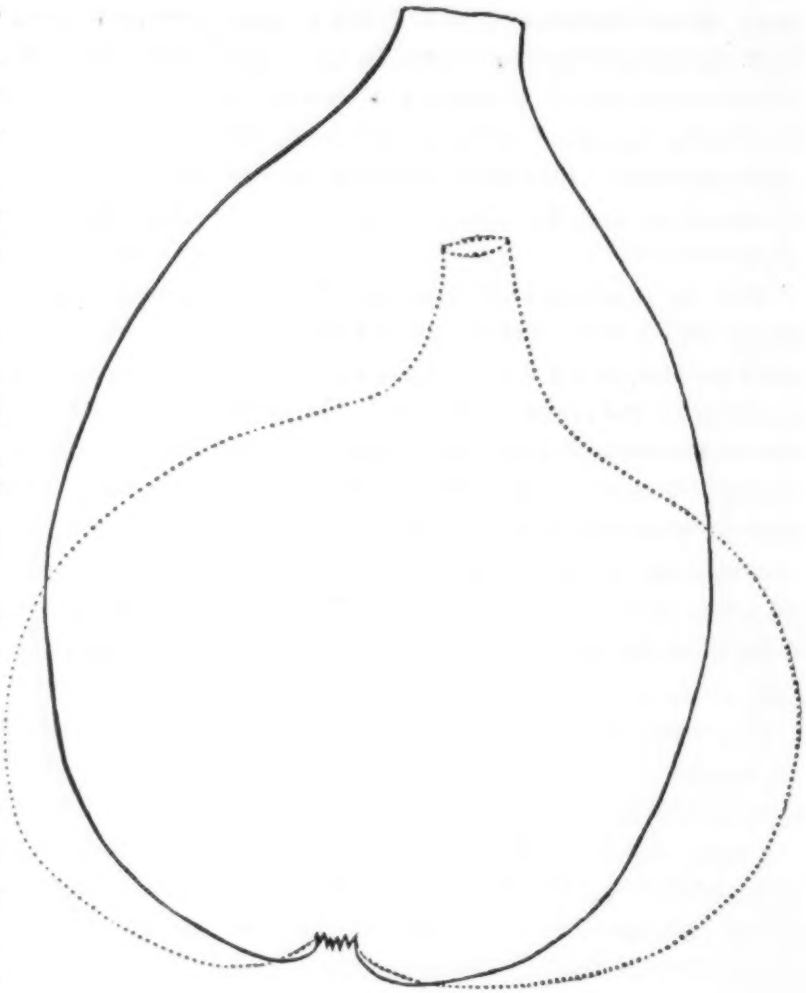

Fig. 54.—*The Alicante Fig.*

I had three trees of tolerable size of this variety, bearing, for two summers, immediately under my eye, and gathered the fruit almost every morning myself, and never had any doubt about its being a *purple* fig, while some of my friends, who have trees from the same source, pronounced it a *brown* one; but you may see by the shape that it is purple. This variety and the *Celestial*, which is as remakable for its smallness as this is for the largeness of its size, are certainly the two very best figs that I have eaten.

The *Celestial* comes to us from New Orleans, where it is esteemed the best fig they have. It is brown, and the skin so thin that when fully ripened, which is indicated by its shrivelling, and hanging down, it can be eaten without being peeled. The tree grows rather slowly, and neither bears very early

Fig. 55.—*Celestial Fig.*

nor very abundantly; while the Alicante grows also slowly, but in conseqence of bearing both very early and abundantly. Both these varieties might, I think, very well be raised further north, in tubs and boxes. I imported a number of varieties from Italy, but saved only one, which proved an acquisition. The fruit is a white variety, small, and looks almost as if made of wax.

The fig is propagated generally by cuttings, which very seldom fail when set in good ground, and at the proper season. This is either in February or August. Cuttings set in August will frequently bear the next spring. It is a common belief among us, that *cuttings* will bear fruit quicker than a tree that is transplanted, but I cannot say whether or not this is the case. The cultivation of the fig is very simple, and consists in merely pruning for shape, and then taking away all suckers, and giving a liberal supply of manure every year, to which some salt may very profitably be added.

I have two trees of the *Corosol of the Antilles*, a fruit, said by C. Bailly, in his *Manuel du Jardinier*, to be superior to the pine apple. I have had one specimen upon said tree for the past two summers, but unluckily my fowls devoured them.

I have have had, for half a dozen years, the *Fig Kaki*, or *Japan Persimmon*, but as the female tree did not appear to thrive where it was, I removed and lost it, but I have sent to Paris for others. I find the *Jujube* tree getting to be a nuisance in my garden, it suckers so freely. I mean to try hedging with it, as it is more thorny than the Osage orange.

My orange crop, owing to bad seasons, has almost entirely failed the last two years.

There is a very rough-skinned, but not acid-juiced, variety of the lemon, very common in Beaufort, being much more hardy than the lemon of commerce, but the fruit is of much less value. The *Myrtle-leaved* orange is also quite common, and is more hardy than either the sweet or sour oranges. Also, two kinds of "Forbidden Fruit," the one nearly as large as the oldest India Shaddock, its flesh of a greenish yellow; the other about the size of the sweet orange. The large variety I have, and it has proved more hardy than the common orange, having, under severe frosts, shed only the leaves proper, and not the winged footstalks. The smaller variety is common in Beaufort. The Shaddock, with pink-colored flesh, grows also here. The rind or peel of this, and that of the large Forbidden Fruit, is in much demand in Beaufort, where it is prettily *carved*, and then preserved as sweetmeats for presents. [We have seen specimens of this—certainly the most delicate and fanciful of all preserves.—Ed.] A clay sub-soil seems to suit the orange much better than a sandy one. My oranges here, in many seasons, have been of good size, and quite sweet, while those in Beaufort, on a sandy soil, were small, green and quite sour.

I have three or four hundred *olive* trees, most of which are bearing, though they are yet small. They were procured from the neighborhood of Florence. They have not been touched by frosts of previous seasons, though in some cases, so cold that the *leaves* of almost all the orange family were killed.

The summers of 1846–47, have been unfavorable for fruits of all kinds, especially that of '47, for it began to rain about the middle of May, and continued, with *very* few intervals, until nearly the middle of September. I did not have a single peach fit for eating, and my apples were imperfect. Yet some of my pear trees bore abun-

dant crops of fine fruit. *Muscat Robert* bore for the first time, and was loaded. My *English Jargonelle*, (upon the quince stock) a tree of seven inches diameter at a foot from the ground, bore fruit large and perfect of its kind, and fine if not first rate. They were in eating from the middle to the 26th of July. *Golden Beurre of Bilboa*, ripened with me on the 24th of August.

My *St. Germain* trees (two standards and one dwarf) were loaded with large and perfect fruit, (I send you an outline of one of them in this letter.) I will not say that this was the average size, but I had several larger, and one that weighed 1 lb. 1 oz. This, of which I send you the outline, weighed about one pound. [The outline shows a St. Germain of common size, 11 inches in circumference the smallest way, and 5 1-2 inches in diameter the longest way.—Ed.] They began to drop from the tree early in October, and have been in eating up to January. The variety, ever since it began to bear, three or four years since, has never failed to bear regularly and abundantly, and keeps later than any late sort I have yet fruited. The *winter Bonchretien* has borne cracked and imperfect fruit the past summer, for the first time since it commenced fruiting with me. I think the fruit rather better than the St. Germain—both are in eating at the same season.

I have one hundred varieties of pears; many of them I have collected from various sources abroad, and have, as yet, seen no description of a part of them. I expect a large number to come into bearing the coming season, if it is a favorable one. I would be glad to send you samples for comparison with the same fruits in your climate.

We are not so much behind the age in the cultivation of fruits as one would be led to suppose, from not seeing any South Carolinian quoted among the Pomologists in your book, though we are much more so than we ought to be. However, a change is rapidly taking place, and we are becoming better farmers, better gardeners, and better planters. A taste for Horticulture is very much on the increase.

I am with respect,

Your ob'd't servant,

ROB'T CHISHOLM.

Palmetto Hall, near Beaufort, S. C., Feb. 1848.

[We shall be glad to hear again from our correspondent, who is one of the most zealous devotees of horticulture among southern planters.—ED.]

REMARKS ON GARDENING AS A SCIENCE—NO. 8.

BY DR. WM. W. VALK, FLUSHING, L. I.

LIGHT.—In our last article, the question was asked, at its conclusion—"whether, as a general thing, we are not at infinite pains to ventilate our plant houses, with no other or better result than incurring much trouble without any sort of advantage?" The editor correctly supposes that we do not "deny the superior growth and luxuriance of plants in houses heated in the '*Polmaise*' mode." We simply question the necessity or utility of ventilation, as *usually* practiced. Light is an agent of wonderful power in its effects upon vegetable life; but it is not our purpose to investigate this most mysterious principle, beyond the influence exerted by it upon the organic structure and developments of plants. By Sir ISAAC NEWTON, and the late Sir WM. HERSCHELL, many interesting experiments were made to prove the divisibility or decomposition of

a ray of solar light. They, and others since their time, not only succeeded in proving this, but also made it apparent that different heating powers were possessed by the ray when so divided. It will not be out of the way to notice these briefly.

When a sunbeam is made to pass through a triangular piece of polished glass, called a prism, an oblong image, termed a spectrum, is produced, which displays on a white screen seven primitive colours,—red, orange, yellow, green, blue, indigo, violet. The white sunbeam, as everybody knows, produces a sensation of heat on the hand; yet it communicates no degree of warmth to a piece of glass through which it passes, as, for instance, a burning glass. But, decompose the ray, and it at once exhibits very different degrees of heat; thus,—"on applying a delicate thermometer, it is seen that the blue ray scarcely affects it at all; in the green it rises, and in the red shows an increase of several degrees. Assuming the heating power of the violet ray at 16°, that of the green is 26°, of the red 55°; but beyond the red ray, and the limits of the visible spectrum, the increase of temperature is still greater."

These phenomena, though inconclusive, are nevertheless interesting; and they have been rendered more so by the recent observations of Dr. Horner, of Hull; for these have made it probable that glass of different colours may be of use to the gardener in effecting different objects; thus, blue glass is supposed to favor the first principles of growth, and to assist the germination of seeds, and, by inference, the protrusion of roots from cuttings; while the red, or heating colour, and the brilliant illuminating yellow, are more favorable to the processes of maturation.

The unity of creation, the universality of light, seem to require, and indeed, prove, that one simple, vivifying principle is, and has been in active operation from the commencement of time. Professor Playfair once observed—"If we consider how many different laws seem to regulate the action of impulse, cohesion, elasticity, chemical affinity, crystallization, heat, light, magnetism, electricity, galvanism, the *existence of a principle more general than these*, and connecting *all of them with that of gravitation, appears highly probable.*"

Such was the almost prophetic suggestion of this philosopher. That *the globe* was "*cavernous, replete with light, shining with intense splendor*," was the presumption of a Leslie. But if, as we believe the fact to be, *solar light* is the only ethereal essence or matter which pervades all nature, no such cavernous central magazine of it is required; nor need we perplex our minds about the source of effulgence, for the glorious *sun* stands revealed to all; and the life and activity of creation depend upon his beams. View it in any way we please, the command—"*let there be light*," was the language of power; the fiat gave life to all created things, and there is not one act of progress or increase, of respiration, decomposition, motion, electrical or chemical action, that is not, and ever has been, dependant on it for its commencement, continuation, and completion. Let those who doubt consider the wonderful orb, whose beams have been poured upon the planetary system throughout time; let them, with philosophic eyes, view the mighty phenomena of development and increase that are manifestly the result of his power, and they will find themselves constrained either to admit that *light is absorbed* by the bodies upon which it strikes, or that it becomes extinguished and lost; the latter conclusion would be subversive of the analogy of all nature.

But if the beams of light be absorbed, they must of necessity be masked or concealed, till excited by some powerful agent which disturbs the natural equilibrium; and such disturbance is happening every day and hour, in every act of abrasion, percussion, motion, chemical action, and so forth.

The source of light is the *sun*, whence its diffusion is universal. That mighty orb, being the fountain of pure ethereal light, electrises all bodies, (primary or secondary,) and produces a condition in such bodies which causes them to attract each other, and to be attracted themselves, universally and interchangeably.

We may not be able to withdraw the veil of mystery; but the experiments of Professor FARADAY are quite conclusive of the fact, that a stupendous quantity of electricity combines with the elements of matter, and gives them form and consistence; it retains them in their natural condition and order. This electricity is derived from the sun; and, as all light comes from that source, it becomes the *first grand connective principle.*

Light, we have said, pervades, imbues, influences all things. True, we do not perceive it in a drop of water; yet water contains the elements of tremendous combustion. Flint does not manifest light, neither does steel; yet who doubts their excitability by percussion? Hydrogen gas, the lightest of all known airs, is invisible; yet let a stream of it be forced through a fine aperture upon a bit of spongy platinum, the cold metal will become heated and ignite the gas. A piece of glass, and a small square of black silk, are both inert and cold bodies; yet rub them together, they exhibit sparks of ethereal light. A little white sugar, mixed with powdered chlorate of potass, will burst into flame on applying a drop of sulphuric acid. On the same principle, our lucifer matches act as excitable media of masked electrical light.

As the principle of solar electric light becomes better understood, the theory of *latent heat* will be forgotten. Philosophers are advancing on the road; but, like the world, they cling to old prejudices. For what Davy and Faraday have effected and improved, we may be thankful; but we are far from the *simplicity* of science.

Light, as applied to plants endowed with vitality, is an active principle; they drink it in, and colour is imparted to their foliage and flowers; but it is a mistake to imagine that the direct ray is always essential; for diffused light acts perfectly well on many vegetables; and even in a dark cellar, a rhubarb plant exhibits gorgeous tints of red and yellow. The air itself is replete with lights, and this medium cannot be excluded.

Inert vegetable matters, void of life, as straw, haulm, dry wood, are vehicles of this mighty principle, which require only a spark, or even friction duly applied, to raise it into activity. They there burst into rapid combustion, and produce substances, the existence of which could be no more suspected by the ignorant, than was the light which blazed from a dark mass of lampblack, excited to spontaneous combustion (as it is *improperly* termed,) by electro-chemical agency.

Light, it appears, is to vegetables the stimulus of the vital principle; its operation during the day effects the elaboration of the elements of water and carbon, producing the specific essences of the individual species. It is the chief agent of maturation, as well as of colour; its absence during night, and in winter, produces torpor; and *repose* is as essential to plants as to animals. Plants, made the subject of experiment, are always placed in artificial situations; therefore, we cannot trace the direct agency of

light with precision; still, from the observation of natural phenomena, we may reasonably conclude, that every material alteration or change in their fluids is chemical; if chemical, it must be electrical; and if electrical, we are inevitably led to the primary fountain of light. Thus all is harmony, and all referable to *one* great principle—the sun!

Electricity has been thus prominently alluded to as an agent of unsuspected, yet wonderful power in vegetable organization and growth. "All decompositions and new combinations, all changes of condition, from the solid to the liquid, from the liquid to the gaseous, from this latter back again to the liquid, and so forth, are invariably and necessarily attended with a disturbance of the general electric repose." But the gardener starts in amazement, and exclaims,—"What have I to do with electricity or electric disturbances?" The question may be fairly asked, because he *sees* nothing which can convince *the eye;* but when the *mind* contemplates the fact, that every act of friction and percussion induces a chemical action, however slight, which reveals a corresponding quantity of electricity, then the gardener will perceive, that in every one of his operations by the spade, fork, garden-trowel,—his mixing soils, manures, composts, potting, re-dressing, or even stirring the surface of his pots,—he disturbs the condition of his ground, brings fresh matters and substances into contact, and thus promotes the decomposition of water, and of hydro-carbonous materials, and produces an equivalent stream of electricity, which conveys the nutritive, newly formed fluids, into the absorbent vessels of the roots.

The really intelligent man will not condemn what at first he may not fully understand; the rather will he desire to know more, although, to him, the subject requires the plainest elucidation. We would have gardeners *thinking* men, something better than mere diggers of the ground:

——"Strength may wield the ponderous spade,
May turn the clod, and wheel the compost home;
But elegance, chief grace the garden shows,
And most attractive, *is the fair result of thought.*"

The horticulturist should know that every portion of soil contains decomposable substances, which contain the *elements of water*, (oxygen and hydrogen,) in the proportions to form water, united with a determinate quantity of *carbon*, (the base of charcoal.) These elements are held together by definite quantities of the electric principle, the source of which is the sun. In culture, this electricity becomes disturbed, and the particles deranged; they change their position, and become re-united under various solid, liquid, and gaseous forms,—all and each again combined with appropriate, equivalent proportions of the all pervading ethereal fluid. We may not, certainly, be able to ascertain minutiæ, or even to acquire the credence of doubters; but certain it is—so much *has* been demonstrated by experiment—that there can be no hesitation to challenge the whole world of antagonists to disprove it, or afford a rational ground for disbelief. The light has dawned upon our ignorance, and darkness is giving place to the luminous facts which are revealed. The "royal road of scientific discovery" is before all who will travel it; and he is but a laggard who fears to take the journey. WM. W. VALK.

Flushing, L. I., Jan. 7, 1848.

POMOLOGICAL NOTES.

BY A FRUIT GROWER AT WORCESTER, MASS.

[The following notes, though anonymous, are, as we can assure our readers, from one of the most careful and judicious cultivators in New-England. Ed.]

There are a few varieties of pears, among a considerable number that I have had the opportunity of testing, of the merits of which I think some cultivators, at least, are not well informed. I offer the results of my experience, in relation to them, for what it is worth. If my views are correct, it may be of advantage to some one; if not, it may open the way for those who have had better means of judging, to correct my errors.

Beurre d'Amalis.—A large, handsome, and very good pear. It has been called first rate. I should call it good second rate; but it has so many good qualities as to make it valuable, especially for market cultivation. The tree is a good grower, and a remarkably free bearer on alternate years, and has the recommendation—no small one, by the way—of perfecting its fruit, however full it may bear. It is very juicy and good flavored, and is much improved by ripening in the house. It comes immediately before the Bartlett.

Rostiezer.—The best summer pear I have yet seen,—superior even to Dearborn's Seedling. The tree makes a clean, strong and beautiful growth. Wood dark olive, nearly as dark as the Rousselet de Rheims. Foliage large. It gives promise of being an early and free bearer. Fruit finely formed, fair and handsome, a little under medium size, very juicy, with a fine aromatic flavor. It ripens here the latter part of August, between the Bloodgood and Dearborn's Seedling.

Doyenne Boussouck.—After four years acquaintance with this pear, I consider it decidedly one of the greatest of our recent acquisitions in pomology. Tree of tolerably vigorous growth, and a great and constant bearer. Fruit large; in form, considerably resembling the *White Doyenné* or St. Michael, light green, becoming a bright lemon yellow, sometimes with a slightly red cheek. Surface somewhat uneven, like the Duchesse d'Angouleme. Flesh rather coarse, but very juicy, buttery and good flavored. Specimens have been repeatedly shown at our horticultural exhibition, where they were generally supposed to be the St. Michael, brought to extra size by high cultivation. In quality, it approximates very near that kind, but is distinguished from it by its more uneven surface, its stouter stem, rather coarser grain, and greater size. The leaf is broader, with a shorter petiole. This tree was imported from France by Wm. Kenrick, in 1841.

Glout Morceau.—My pears of this variety, the last season, were magnificent in size, and delicious in quality. I think it a much superior pear to the Beurre d'Aremberg, with which the French seem to have confounded it. The only objection ever made to it has been its tendency, sometimes, not to perfect itself. This, I think, is owing either to deficient cultivation or to indulging it in its strong propensity to overbear. Giving this objection all the weight it is entitled to, it is still a most valuable kind, well worth some extra pains to bring it to perfection. This, I think, may be done by generous treatment, especially by the use of *bone dust* about the roots, and by removing

the poorer half of the fruit in seasons when it bears most freely. Quince stocks are rather preferable to pear, for this kind.

Surpasse Virgalieu.—I am surprised that this variety is not more known and cultivated than it appears to be. It is one of the most uniformly productive kinds, and comes into bearing very young. It is of medium size, buttery, high flavored and excellent. It should be in every good collection.

Paradise d'Automne.—This has been said to resemble the *Beurre Bosc*, and some have even expressed doubts whether they were not identical. The only resemblance I have been able to find, more than exists between other good varieties, is, that they are both russet fruits, and both of the very first quality. They differ considerably in form; the Paradise is more sprightly than the Bosc, with a different flavor. The Bosc is but moderately vigorous in its growth, while the Paradise is one of the most thrifty and strong growing of all pears. It promises also to be very productive.

St. Ghislain.—This deserves a higher reputation than it has attained. It has been said to be somewhat variable, and not of uniformly good quality. I apprehend this is owing to its being allowed to hang too long upon the tree. When seasonably gathered and ripened in the house, I have found it to be uniformly fine. It is a beauful grower, upright and handsome in form, and a free bearer. But it does not bear so early as many other kinds, and may, consequently, be expected to endure longer.

Lawrence.—I have fruited this pear one season, and am much pleased with it. It is destined to be a standard variety, nearly, if not quite, equal in quality to the old St. Germain, and of a much more vigorous character.

Peach Plum.—This plum has been known in this vicinity some twenty years or more. It is very early, ripening sometimes in July, larger than the Washington, and very handsome. It sells readily in Boston market for 75 cents a dozen. The quality is very good. It is *not* a good bearer.

Worcester, Mass., March, 1848.

NOTES ON PROPAGATING BY CUTTINGS.

BY PROFESSOR LINDLEY.

What is required when cuttings of plants are to be struck, is a due adjustment of heat, light, and moisture. The first stimulates the vital process; the second causes the formation of matter, out of which roots and leaves are to be organized; the third is at once a vehicle for the food required by the cutting, and a part of it. The great difficulty is to know how to adjust these agents.

If the heat is too high, organs are formed faster than they can be solidified; if too low decay comes on before the reproductive forces can be put in action. When light is too powerful, the fluid contents of the cutting are lost faster than they can be supplied; when too feeble, there is not a sufficiently quick formation of organisable matter to construct the new roots and leaves with. If water is deficient, the cutting is starved; if over abundant, it rots.

It is, then, the adjustment of these varying forces to the peculiar nature of the cutting to be acted upon, that constitutes the art of propagation. It is this which theory cannot supply, but which depends upon skill

and experience. If any part of the operations of cultivation can be called empirical it is this. And yet the operator is not without rules to guide him in this adjustment; the misfortune is, that they are too general.

The softer a cutting, the quicker must be the excitement and application of the formative process, the more light, the smaller the quantity of water. The more hard and woody a cutting, the slower will be the operation, the more feeble the light, the greater the quantity of water. If these conditions of new growth can but be preserved, all cuttings of all plants may be converted into new individuals.

The great enemies of the propagator, says Mr. Neumann, are rotting and drying; for this reason cuttings are preserved in the midst of a temperature and humidity always equal, the evaporation of the soil is hindered, and the perspiration of the cuttings is prevented.

Heat, light and moisture being thus shown to be the agents to whose assistance we must look for success, and by whose mismanagement the hopes of the gardener are ruined, it is of the first importance to determine how each can be best and most efficiently controlled.

And first of heat.

We know that plants are distributed over all parts of the habitable globe; that in neighboring countries the species are nearly alike, that distant countries are clothed with vegetation of entirely different kinds, and that the distinction in the vegetation is in proportion to the distance of the countries from each other. There is not, perhaps, a dozen species in Normandy that do not grow wild on this side of the Channel; there is not a dozen species common to England and Bengal. Species, in fact, are in general limited by similarity of temperature, and cannot exist beyond such limits. One of the first considerations for the propagator, therefore, is what amount of heat is natural to a species during its season of growth. With less than that it is hopeless to make cuttings grow. It is only when plants strike freely that the natural amount of heat is sufficient; in general they require more. The amount of heat found in their natural climate may be enough for them to grow in; but a greater degree of excitement, by means of a higher temperature, will be demanded by them to strike root in, when cut up into the fragments called cuttings. A Willow cutting stuck into the open ground will strike root, but it does so much faster and more vigorously if placed in a hotbed. A Whitethorn cutting in the open ground will not root at all; in a warm propagating house, it will do so readily: and to reverse the illustration, cuttings of tropical plants, which naturally enjoy a very high temperature, will perish if it is reduced, and will only put forth roots when it is raised considerably above their natural standard. Thus Mr. Neumann mentions that Nutmegs, Guaiacum, Mangoes, &c., will not succeed unless in a temperature of about 100° Fah. That degree of heat, again, would be fatal to green-house plants.

But it is not the temperature of the atmosphere that requires to be maintained above that to which plants are naturally subject: it is the soil that must be warmed. The first object is to obtain roots; those organs once formed, leaves will follow. The vital action which causes the production of roots is, in the first instance, local; roots are produced by the development of the cellular matter of the underground part; that cellular matter requires to be stimulated by unusual warmth; but the necessary stimulus cannot be communicated by a heated atmosphere: it is the warmth of the soil in which the cellular matter lies buried that

most be secured. Unusual warmth of the air would have the effect of stimulating the buds, and would cause a premature appearance of leaves, which would be anything rather than conducive to the success of a cutting. If soil were to be kept at 33°, and the air at 84°, leaves would form, but no roots would be emitted under ground, however skilful the operator; and then, unless roots were thrown out above ground the cuttings would speedily exhaust themselves. On the other hand, if the soil were kept at 84°, and the air at 33°, leaves would certainly be formed as soon as the roots had struck out, although in a pinched and shivering condition.

A proper degree of *bottom-heat*, then, is the first point for consideration, for all other processes are subservient to that fundamental requisite; and the rule is, that it should always be higher by several degrees than that to which plants are naturally subject. Unfortunately, we have very little evidence to show what that is; but a rough estimate of it may be formed by regarding it to equal the mean temperature of the summer: hence the great value of good meteorological observations to gardeners. Suppose, for example, that it is required to strike a cutting of some plant from Algiers, and that the mean temperature of the summer there were 70°—which is, we believe, about the truth—the safe course for the gardener to take would be, to plunge his cutting in soil warmed up to 75°.

It is very much to be regretted that no one should have as yet compiled a set of meteorological tables for the use of gardeners. They would be invaluable; and we live in hope that some public body will, ere long, take up the subject. Scattered through books, there is a vast quanty of evidence which, although imperfect, is of great value, but nobody knows where to look for it when it is wanted. If such a work were once compiled, evidence would quickly accumulate, for inquirers would learn what to observe. With that evidence, gardening would assume more and more the condition of a science; for there is no doubt a correct knowledge of the heat, light, and moisture of different climates is, next after the laws of vegetable physiology, the surest guide to successful cultivation.—*Gardener's Chron.*

[Amateurs who find it difficult to propagate certain *stubborn* kinds of hardy trees and shrubs, may obviate the difficulty by planting them at this season, in a *hot-bed*, properly shaded and ventilated, instead of a common shaded border.—Ed.]

THE CULTIVATION OF THE FILBERT.

[FROM THE LONDON HORT. MAGAZINE.]

[Filberts are grown with ease in any suitable soil in the northern states; and we commend to such of our readers as wish to attempt their cultivation, the following excellent advice. Ed.]

It is not generally known, except to professional gardeners—or, if known, the knowledge is seldom acted on—that a filbert tree may be rendered productive in almost as small a space as is occupied by an ordinary gooseberry or currant bush. In fact, under favorable circumstances, the produce of these neat bushes is astonishing. We propose, therefore, to explain this mode of cultivating the filbert; and in doing so shall avail ourselves of some excellent directions

by the Rev. W. Williamson, published in one of the early volumes of the *Transactions of the Horticultural Society.*

The first consideration in making a plantation, is to select a proper soil; for if that be not congenial to the constitution of the plants, we cannot expect any great success. The soil in which the filbert is found to flourish best, is a hazel loam of some depth, with a dry subsoil. If the subsoil be too retentive of moisture, the trees are apt to run too much to wood, without throwing out those short twigs upon which the fruit is generally produced. In that part of Kent which is famous for the cultivation of the filbert, the soil is loam upon a dry sandy rock. It may be taken as a general rule, that soil which is proper for the growth of hops, is also congenial to the filbert.

The filbert requires a considerable quantity of manure; the grounds in Kent are dressed every year, or at least once in two years. Every kind of manure is beneficial; but old woollen rags are found to produce the greatest effect.

There are four methods of raising the plants; by suckers, layers, grafting, and sowing the nuts. Each may be practiced according to the peculiar object of the cultivator; but the best method is by suckers; they come sooner into bearing, and make stronger plants than either layers or grafts. They are taken from the parent plant generally in the autumn, and planted in nursery beds, (being first shortened to ten or twelve inches,) where they remain three or four years. They are slightly pruned every year, in order to form strong lateral shoots, the number of which varies from four to six. The most free growing plants are obtained by sowing the nuts; but they are so long in coming to a productive state, and are, besides, so much inclined to degenerate into inferior varieties, that this method should not be resorted to in making a permanent plantation. The plants raised by layering and grafting are of more humble growth, and therefore better adapted for small gardens where economy of space is made an object.

The method of pruning the filbert being different from that of every other tree, and not generally practiced, a particular explanation of it will be necessary. Mr. Williamson has done this so clearly, that we cannot do better than quote his words, which follow: Before any one can possibly prune a tree with propriety, it is necessary that he perfectly understand the mode of its fructification. The fruit of the vine is produced only upon shoots of the preceding year; cherries are grown chiefly upon short spurs emitted from the sides of the larger branches; if, therefore, the last year's shoots of the vine, or the spurs of the cherry tree, are destroyed, there can be no fruit. Now, in some respects, the filbert is similar in its fructification to both these trees; the bearing branches being *always* those of the preceding year, similar to the vine, and these branches, if the tree be properly pruned, might with great propriety be called spurs, allowing for the difference between the filbert and the cherry; these short twigs or spurs are not more than a few inches long, every bud of which, in a good year, produces fruit. The great object of the following method of pruning is to cause the trees to throw out these spurs in great abundance; and when they are got to a proper bearing state, more than sufficient will be produced. But though it is the usual practice to plant the suckers in nursery beds, I would advise every one to plant them where they are to remain, whether they are intended for a garden or a larger plantation: and after being suffered to grow without restraint for three or four years, to cut them down within

a few inches of the ground. From the remaining part, if the trees are well rooted in the soil, five or six strong shoots will be produced. Whichever method is practiced, the subsequent treatment of the trees will be exactly the same. In the second year after cutting down, these shoots are shortened; generally one-third is taken off. If very weak, I would advise that the trees be quite cut down a second time, as in the previous spring: but it would be much better not to cut them down until the trees give evident tokens of their being able to produce shoots of sufficient strength. When they are thus shortened, that they may appear regular, let a small hoop be placed within the branches, to which the shoots are to be fastened at equal distances; by this practice, two considerable advantages will be gained; the trees will grow more regular, and the middle will be kept hollow, so as to admit the influence of the sun and air; but this, in a large plantation, would be almost impossible, nor indeed is it necessary, though in private gardens, where regularity and neatness are almost essential, it ought to be practiced. In the third year, a shoot will spring from each bud; these must be suffered to grow till the following autumn, or fourth year, when they are to be cut off close to the original stem, and the leading shoot of the last year shortened two-thirds. In the fifth year several small shoots will arise from the base of the side branches which were cut off the preceding year; these are produced from small buds, and would not have been emitted, had not the branch on which they were situated been shortened, the whole nourishment being carried to the upper part of the branch. It is from these shoots that fruit is to be expected. These productive shoots will in a few years become very numerous, and many of them must be taken off, particularly the strongest, in order to encourage the production of the smaller ones; for those of the former year become so exhausted, that they generally decay; but whether decayed or not, they are always cut out by the pruner, and a fresh supply must therefore be provided, to produce the fruit in the succeeding year. The leading shoot is every year to be shortened two-thirds, or more, should the tree be weak, and the whole height of the branches must not be suffered to exceed six feet. Every shoot that is left to produce fruit, should also be tipped, which prevents the tree being exhausted in making wood at the end of the branch.

The filbert is a monœcious plant, and consequently produces the male and female blossoms separately on the same tree; the slender scarlet filaments which are seen issuing from the end of the buds early in the spring, are the female, or productive blossoms; the barren, or male blossoms, are formed on long cylindrical catkins, which fall off as soon as they have performed their office; in pruning, care must be taken to leave a due supply of these to fructify the female blossoms, or our previous trouble will be entirely useless; this may be done without difficulty, for they are perfectly visible at the time of the pruning.

The method of pruning above detailed might in a few words be called a system of spurring, by which bearing shoots are produced which otherwise would have had no existence. It frequently happens that a strong shoot springs from the root; and should any of the first year's or leading branches be decayed, or become unproductive of bearing wood, it will be advisable to cut that entirely away, and suffer the new shoot to supply its place, which afterwards is to be treated in the same manner as is recommended for the others. Old trees are easily induced to bear in this man-

ner, by selecting a sufficient number of the main branches, and then cutting the side shoots off nearly close, excepting any should be so situated as not to interfere with the others, and there should be no main branch directed to that particular part. It will, however, be two or three years before the full effect will be produced.

But though this method of cultivation has long been celebrated, yet it does not appear to me so particularly successful as to deserve the encomiums which have been bestowed upon it; for though thirty hundred weight per acre have been grown in particular grounds, and in particular years, yet twenty hundred weight is considered a large crop, and rather more than half that quantity may be called a more usual one; and even then, the crop totally fails three years out of five; so that the annual average quantity cannot be reckoned at more than five hundred weight per acre.

When I reflected upon the reason of the failure happening so often as three years out of five, it occurred to me, that possibly it might arise from the excessive productiveness of the other two, the whole nourishment of the trees being expended in the production of the fruit; and that, consequently, they might be unable properly to mature the blossom for the following year. We know that peach and nectarine trees may be so pruned, as to force them to bear a superabundant quantity of fruit in some one year; but we find that a regular crop in succession is thereby prevented, and that too for several years. In order to ensure fruit every year, I have usually left a large proportion of those shoots, which, from their strength, I suspected would not be so productive of blossom buds, as the shorter ones; leaving them more in a state of nature than is commonly done; not pruning them so closely as to weaken the trees by excessive bearing, nor leaving them so entirely to their natural growth, as to cause their annual productiveness to be destroyed by a superfluity of wood. These shoots, in the spring of the year, I have usually shortened to a blossom bud, for the reason before given. The great art of pruning is to produce the greatest quantity of fruit without injury to the crop of the succeeding year, which, in my opinion, is not done by the Kentish method. But by observing the rule which I have laid down, though the trees do not perhaps bear so great a weight in any one year, as by the method before detailed; yet the crops in the whole certainly are not less; with this great advantage both to the public and private grower, that a moderate but regular crop is ensured in every successive year. I think that by this plan the average weight in the whole will be greater. In the year 1819, which was a very productive one, I grew two hundred weight of filberts, (weighed when gathered,) upon fifty-seven trees, the greater part of which were not above six years old, (reckoning from the time of their being cut down,) and growing upon three hundred and sixty square yards of ground; which is after the rate of twenty-seven hundred weight per acre, and upon part of the ground ten more trees are now planted, which, if they had come to a bearing state, would have increased the quantity to more than is considered as an extraordinary crop, besides having grown upon the older trees a moderate but regular quantity for several years preceding.

When the trees are grown on this plan, it is necessary, in order to strengthen the tree as much as possible, to eradicate the suckers from the root; this is effected by exposing the roots, to a moderaie distance from the stem, to the frosts of winter, and

the necessary excavation is in the spring filled with manure.

As filberts are several years in coming to perfection, it is usual to plant hops, standard apples, and cherries, among them, and when they come to a bearing state, the hops are destroyed, and the fruit trees suffered to remain. The ground is then planted with gooseberries, currants, &c., and an under crop of vegetables is likewise frequently obtained. If this were not practiced, the crop of filberts alone, except in particular years, would not defray the expense. The distance at which filberts are planted must depend upon their being mixed with other fruit.

CULTURE OF VINES IN POTS.

BY JAMES DOUGALL, CANADA WEST.

In the Horticultural Register for 1831, '32 and '33, conducted by Messrs. Paxton and Harrison, I find a number of articles on the culture of vines in pots, by George Stafford, gardener at Willersley Castle, Derbyshire, who appears to be the first person who brought this mode of culture to perfection.

As I have not seen any articles on this subject in the Horticulturist, and as few of your readers, probably, have seen the original ones, I have thought that it might be interesting to them, to have the several communications condensed into one short article.

I think this mode of culture deserving of a fair trial in this country, as many persons, who would not feel able to build a vinery, might, in my opinion, grow vines in pots to great perfection, under common hot-bed sashes.

Mr. Paxton (an authority none will doubt,) says—"Mr. Stafford is a practical gardener of the first order, and one of the best grape growers we are acquainted with; he furnishes Mr. Arkwright's table with grapes nearly all the year round, and that, in superabundance. His plan of treating them in pots, is deserving the attention of every person who has a hot-house, or is likely to erect one; for it is an astonishing fact, that he can produce nearly as great a weight of fruit as the weight of the soil in which the plant grows; this has repeatedly come under our own observation; we can, therefore, speak of the surprising crops he produces in this way, equally as well swelled, and much better flavored, than when trained up the rafters. Indeed, the best swelled and best coloured bunches of the *Grizley Frontignac*, we ever saw, were grown in a pot by Mr. Stafford. Although he recommends the smaller and more delicate sorts, he sometimes cultivates the larger; and these are equally well grown and beautiful. We saw on one of his plants in pots, two years old, 37 bunches, all well swelled and ripe; and he has, at this present time, some of his plants nearly as prolific."

Mr. Stafford used pots 13 inches wide at top, half that width at bottom, and 15 inches deep. The compost was merely a light vegetable soil, composed of decayed refuse of the garden. He advises growing the kinds naturally prolific, such as *Black* and *White Cluster*, *Black* and *White Muscadine*, *White Sweetwater*, *White*, *Red*, and *Grizley Frontignac*, *Black Hamburgh*, and *Black Constantia*.

He examined the vines as often as twice

a day, and gave water whenever requisite; as a strong, healthy, young vine will require much more water than a weak one. He never used liquid manure, except in a diluted state, and then seldom.

In one of his communications he says—"I took in May, by way of experiment, 6 small plants, which I turned out of two-quart pots, and potted them in the size already described. I then cut them down to three eyes, and placed them in the front of the vinery. I trained one shoot up the middle of each light, to the length of five feet; and during the summer paid particular attention in assisting them with the three principal elements, viz., air, water, and light. After they had grown to the length of five feet and their extremities were stopped, they made efforts to grow again; however, I kept them constantly stopped: this caused the sap to enter the auxiliary shoots, or those produced at the base of each leaf on the main stem, which were allowed to grow, occasionally stopping them through the season. Indeed, I gave them the same treatment as vines in houses generally receive. In autumn, the plants were placed in the open air, and the roots protected from frost."

"On the 2d of January, these 6 plants were placed in a house of about the temperature of 60 degrees Fah., when in a short time they broke, showing fruit at every eye, some two, three, or even four bunches each, being on an average of about 40 bunches on each plant, or 240 collectively; and what is more surprising, the shoots are what every person acquainted with vines would term weak,—being, in fact, little thicker than a good quill, towards the base of the stem, and not more than twice that thickness at their extremities.

"A great portion of the fertility may be attributed to the proper supply of water. For this purpose, a feeder is kept under each pot; as I am confident every plant so situated is benefitted by capillary attraction.

"Whoever attempts to propagate the vine by cuttings, should make choice of such shoots as are on the most productive part of the vine; otherwise, the plants will be unproductive; for a person may collect either fruitful or unfruitful cuttings from the same plant."

Fig. 56.—*A Black Hamburgh Vine grown in a Pot.*

"Vines in pots will grow in a common hot-bed frame with good success, I have little doubt, provided the plants are properly prepared. I have now, March 18th, nine pots with small plants, the whole of which could be placed in a common three light frame. The average number of bunches is 40 on each vine; in all, 360 perfectly good bunches. By a judicious arrangement of their stems, and attending to the supply

of water and air, and a regular heat by linings, they will no doubt bear good crops. The Black Hamburgh would do for this purpose; but owing to the dimensions of the leaves, it is not so suitable as some others."

"I have now plants making as strong wood as any on the rafters, which have been subjected to pot culture for the last twelve years. The plan more to be recommended, is to give each plant an alternate year of preparation.

"I do not shift bearing plants every year, and never re-pot a plant as long as it is inclined to produce fruit. When it fails, I cut it down, reducing the root to a ball of about nine inches in diameter, and put it deep in the same pot. My vines have usually from eighteen to twenty-four buds in the length of five feet."

Though Mr. Stafford directs that the vines should be placed in the vinery during the preparatory stages of growth, there is no doubt but in this climate they would perfect their growth, and fully ripen their wood, for the two years previous to fruiting, in the open air, by protecting the pots with moss from the drying effects of the sun and wind.

The growth of the vines in pots could also easily be retarded till the sashes from the hot-beds could be spared, which would be about the first of May, when they could be used to cover the vines without the use of any artificial heat; while for early forcing, I think vines in pots would be more suitable than those planted in the border. I intend trying the culture of the vine this way, and will give you an account of the result. JAMES DOUGALL.

Rosebank, near Amherstburg, C. W., Feb. 18, 1848.

VALUABLE NEW VEGETABLES.

FROM among the numerous new vegetables which make their appearance in the catalogues of the seedsmen, we are able to recommend strongly, from experimental knowledge, or personal observation of their value, the following, as well worthy of cultivation by every one who values the products of the kitchen garden.

WALCHEREN CAULIFLOWER.—This new German cauliflower is a great acquisition; being more vigorous, hardy, and better adapted to our climate, than any of the old varieties that we have cultivated. The heads are large, and the flavor is most excellent. There are two varieties; the *Early Walcheren* and the *Late Walcheren*. The seeds of the latter, when this vegetable is wanted for *winter* use, should be planted in May, and the plants transplanted in June, for future growth. We have had a supply of this truly delicious vegetable for our table *all the past winter*. Our mode was this: We made a plantation of the *Late Walcheren* in good soil, about the middle of June. These plants grew and attained nearly their full size, but did not come into flower at the approach of severe frost. As soon as this period arrived—about the first of November—we had them all taken up, with a little earth about the roots of each, and removed to the cellar of an outbuilding, which was free from frost. There they were replanted, by barely covering the roots with earth,—the larger part of their leaves being left on the plants. In the course of a fortnight, the strongest ones formed fine flower-heads; and, gradually, the others all blossomed and became fit for

the table; and certainly, no vegetable in winter can be compared with them.*

It may be remarked, that any late cauliflower may be treated in this way; but we have never found any to flower so uniformly, or to have so delicate and succulent a flavor in winter as the *Walcheren.*

The Early and Late Walcheren Broccoli are also very superior, hardy new varieties of this excellent and too little cultivated vegetable. They may be grown in soils where the cauliflower does not succeed.

The Portugal Cabbage,—(*Couve tronchuda,*) noticed in our first volume, is one of the most delicious of all the cabbage tribe. It is, as yet, scarcely known or cultivated in this country, but needs only to be seen and tasted to become universally popular. Even the stout leaf-stalks, when boiled, are nearly as good as sea-kale. But the heart is the part chiefly used; and cooked in the same way, is nearly or quite as delicate as the best cauliflower, having none of the coarseness and strong flavor of the cabbage tribe. It may, like the cabbage, be grown as an early or a late vegetable; but it is most valuable when sown in May, and kept for use during the autumn and winter. There are two varieties; one large, and the other dwarf. The former, (the only one, we believe, yet introduced,) grows large, and the plants should be set three or four feet apart. The latter takes much less space, and is said to be superior in flavor.

Bassano Beet.—Certainly the earliest, sweetest, most tender and delicate of all beets. We have cultivated it for three or four years; and last year, planted it for trial in the same soil with half a dozen of the most noted early varieties, and found it to exceed, in earliness and flavor, all others. The root is oval, (long-turnip rooted,) in colour a pale red, and it is fit for use ten days sooner than the Early Blood Beet.

Turtle Soup Bean.—We received for trial, last spring, a package of dwarf beans, bearing this name, from Messrs. Thorburn & Co., New-York. It proved to be the best *snap*, or *string-bean* that we have yet cultivated—as a general crop for family use. Its superiority over the ordinary bush-beans consists in the tenderness and excellent flavor of its pods, and the long time which they continue fit for use,—certainly three times as long as those of the common dwarf beans. Where only one variety of dwarf bean is cultivated, we would recommend this variety as decidedly preferable to the old sorts; and it bears abundant crops on dry soils, where several others fail. It is said to have its name from the superior flavor of the ripened beans in soup. We have not used them in this way, and cannot therefore speak on this point.

Waite's Queen of Dwarf Pea.—This is, just now, the favorite *very early* pea in England; and we observe that it is advertised by the leading seedsmen in this country. From a small quantity, grown last season, we should think it likely to prove deserving of its foreign reputation.

The Cedo Nulli Pea is still our favorite, as the best and earliest dwarf pea yet well known and proved in this country. It bears abundant crops, requires very little space, is fit for gathering several days before the Early Frame, and is of excellent quality.

Darling's Early Sweet Corn.—Those who know, experimentally, how superior the *sweet corn* is in a green state to all others, for table use, will be glad to know that this variety, (originated by the late Judge Darling of Conn.,) will enable them to have it upon their tables long before the

* The cellar was aired freely on all fine, mild days.

common sweet corn is fit to pluck. It is, indeed, one of the very earliest kinds of maize, and should be cultivated in every kitchen garden.

Some of our readers will be glad to learn where these seeds may be had genuine. The Portugal cabbage is, we believe, for sale by Breck & Co., seedsmen, Boston; the early sweet corn at the Agricultural Warehouse, 10 Green-street, Albany, and the other vegetables at Thorburn & Co.'s, New-York; and they may also, no doubt, be obtained of various other seedsmen in the larger cities.

PROFITS OF FRUIT GROWING—NO. 2.

BY B. G. BOSWELL, PHILADELPHIA.

When so many farmers are complaining of small profits, we think it proper to say a little more on the profits of fruit growing.

Charles Dubois, of Fishkill landing, Dutchess county, N. Y., has taken thirty-three dollars for the fruit grown on one Frost Gage Plum Tree in one season; and last season received ninety dollars for the crop of apricots from one tree.

A lady of Kensington, Pa., has received seventy dollars in a season from one apricot tree.

A gardener, near Boston, has produced eight thousand quarts of strawberries to the acre, and received twenty cents per quart for them,—thus realising sixteen hundred dollars per acre.

An acre of raspberries on Long Island has produced nine hundred dollars worth of fruit in a season. The expense of cultivating, picking the fruit, and taking it to market was one hundred and fifty-seven dollars,—leaving a handsome nett profit of seven hundred and forty-three dollars; a larger sum than thousands of farmers realise from a farm of an hundred acres.

Mr. Zieber of Reading, Pa., has made forty-two gallons of pure grape juice wine from one Isabella vine in a season, worth, when one year old, one dollar and fifty cents per gallon—or sixty-three dollars; being the interest on one thousand and fifty dollars.

An apple orchard of one acre, principally of the Rhode Island Greening, in Wayne county, N. Y., produced two hundred barrels of selected fruit in 1847. Another orchard, of three and one-half acres, produced six hundred and fifty barrels. Although the fruit was sold at extremely low prices—being so far in the interior of New-York—yet the nett proceeds were one hundred dollars per acre. In the vicinity of Philadelphia, such a crop of fruit would have paid a nett profit of three hundred dollars per acre.

John G. Gardner of Nantucket, Mass., has produced the cultivated cranberry three hundred and twenty bushels to the acre, and found ready sale at four dollars per bushel; thus realising twelve hundred and eighty dollars per acre.

Many persons will say—"Well, large profits may be obtained on a small scale, but nothing can be done on a large scale."

We happen, just now, to think of some large operations in fruit culture. Major Reybold, of Delaware, together with his sons and sons-in-law, own a number of farms, and have about a thousand acres in peach orchards. They think nothing of sending five thousand baskets of peaches

to market per day, for some weeks, and are supposed to have realised, last season, forty thousand dollars clear of all expenses.

Robert L. Pell of Pelham, Ulster county, N. Y., is known to have raised, for several years past, four thousand barrels of Newtown Pippin Apples per year; and what he chooses to sell in New-York city, will always command six dollars per barrel. Those he sends to London have sometimes sold [at retail] as high as twenty-one dollars per barrel. Last season Mr. Pell's crop was ten thousand barrels.* Suppose, for argument's sake, that one-third of this amount is swallowed up in expenses, there is still left the handsome sum of forty thousand dollars.

Dr. R. T. Underhill, of New-York, has a vineyard of twenty acres of Isabella and Catawba grape vines at Croton Point, on the Hudson river. It is a well known fact, that some thousands of baskets of grapes, from this vineyard, are annually sent to New-York, and find ready sale at nine dollars per hundred pounds.

The doctor says there ought to be started a hundred vineyards immediately as large at his; and we coincide with him. New-York city, with Brooklyn and Williamsburg, is half as large as Paris; and in this latter city, ten million pounds of table grapes are consumed yearly.

You will, I think, be surprised to hear that many wealthy farmers, near Philadelphia, buy their apples yearly,—this year, at one dollar per bushel; and this, too, when they acknowledge that feeding cattle and raising grain does not pay more than three per cent. on the capital invested in farming. Some of them mean well; they have *intended* to plant out trees every year for the last twenty years!

B. G. Boswell.

Philadelphia, Feb. 14, 1848.

THE CULTURE OF THE CHINESE PRIMROSE.

BY S. B, NEAR PHILADELPHIA.

A few remarks, upon the cultivation of one of the most desirably popular and free flowering winter plants,—one, too, so easily cultivated by all who have a taste for flowers, and a window that lets in the least rays of the sun, will, perhaps, be acceptable to many of your readers, as this is the time to prepare for next winter's blooming.

The *Primula sinensis*, or Chinese Primroses, are window or parlor plants of easy culture; and, when properly attended, the pink and white varieties afford a constant succession of flowers from the 1st of December to the 1st of April. If the cultivator has a few plants to begin with, he would do well to choose two plants of each variety, and place them where they will receive the free benefit of the sun, so that they may ripen their seed early and well. In choosing such plants to save your seed from, take those whose flowers are nearly semi-double, with thick and regularly shaped petals; and it would be better never to cut the flowers of the seed plants, as the seed saved from the *first flowers* is the best. I need not say that selecting the seed carefully, from fine blossoms and of the best varieties, is a matter of great consequence;

[* We know the apple crop at the Pelham farm, last season, was an enormously large one; but we presume our correspondent's estimate of that crop is only an *estimate*, and not a precisely ascertained amount. We endeavored to obtain an exact account of the product of this really great orchard for 1847, but without success. Ed.]

as it is as much trouble to grow a bad seedling variety as a good one. During the months of April and May the seed plants will be gradually ripening their seed; and and it is a good plan to look over the plants each day when the pods appear ripe, so that they may be gathered just before bursting. About the first of July sow your seeds in a seed pan [broad, flat flower pot,] well drained. A little moss should be placed in the drainage, and the remainder of the pan filled with light sandy soil, well sifted; place the pan where it will be shaded during the middle of the day. In two weeks your seedlings will make their appearance. When large enough to take hold of them, prick the young plants into other pans one inch apart. As soon as the plants appear to be well established and rooted, put them singly into three inch pots; putting them, as soon as they begin to grow, out of doors, in a partially shaded place, where they may remain until the pots appear to be well filled with roots. Then get some five inch pots. Let the hole in the bottom be well drained with broken crocks or pieces of charcoal. The best soil for the plants to grow in, is a light rich sandy loam. In potting, do not set the plants deep, but keep them well up in the pots, so that the water will drain well off the stems; as, otherwise, they are apt to damp off.

About the beginning of October, take in some of your plants for early blooming, leaving the others out; for they take no harm from a slight frost. As soon as the weather is severe, place the plants that you wish for late blooming in a frame or cold room, where they will require little protection except from sharp frost. When your early blooming plants are past their prime, let the late ones take their place, always remembering to set aside some of your choicest plants, to save seed from for the ensuing winter's blooming. My reasons for recommending one year old plants in preference to older ones are these: that they require less trouble, bloom more freely, and are much stronger and finer than old plants, (unless you pot the latter into larger pots than is convenient for window culture.) By following these few simple hints, any lady may have her parlor windows constantly gay, during the winter months, with one of the prettiest and most satisfactory of all winter blooming plants, at little expense or trouble. Respectfully, your constant reader. S. B.

Near Philadelphia, Feb. 24, 1848.

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[The *Fringed* Chinese Primroses, of more recent introduction than those with plain flowers, are exceedingly pretty, grow easily from seed, as our correspondent has pointed out, and are well worthy the attention of those who wish a few perpetual blooming, parlor flowers. Ed.]

The Fruits of Scripture.—General Dearborn, formerly president of the Masssachusetts Horticultural Society, makes the following statement in the Transactions of that Society:—"Although so many trees, shrubs, and herbaceous plants, are mentioned in the Old and New Testaments, neither the pear nor apple is named; for it has been conclusively established by Dr. Harris, in his Natural History of the Bible, that the tree and fruit described by Joel, and in the books of the Canticles, Proverbs, and Leviticus, was the citron, and not the apple, as the Hebrew word has been rendered in the English translations."

SPECIAL MANURE FOR PEAR TREES.

BY L. WYMAN, JR., WEST CAMBRIDGE, MASS.

DEAR SIR:—I have used and recommended the compost you speak of in the March number of the Horticulturist, in your article on "Special Manures for Fruit Trees," as a manure for the pear tree in particular. I have usually added to the compost, say in measure, one peck of fine *iron filings*, or one peck and a half of crude turnings of iron, to each load of peat, or muck, and in that proportion for a larger or smaller quantity; and have always noticed the most favorable result.

Two years since I applied this compost to a large pear tree which stood in a damp loamy soil, but which had not borne any fruit of consequence, for six or seven years in succession, although it grew rapidly in size, and sent out a large number of fine healthy shoots. The owner of the tree proposed engrafting some other kind of scions upon the stock, it being a fine variety (the Andrews.) I recommended "one year's patience." He then said—"What would you do with it?" I replied—"I would attempt to remove it, or give it a better soil, and one more adapted to its wants." He remarked—"Very well, take it under your charge; I will spare it this year."

After examining the soil very carefully, I found, as before remarked, a clayey loam, quite damp, and the tree growing in a lone situation. I caused nearly all the earth to be removed from the roots of the tree, and the turf taken off in a circle of seven feet diameter, leaving the tree in the middle of a pan, caused by the removal of the sod and earth. I then applied a sufficient quantity of compost to fill the hole full, the whole new soil rising a little around the body of the tree. The quantity of muck used was one quarter less, in this instance, as I believed the tree required not so large a quantity of muck as one would growing in a higher location, but rather more sand. I used sand. My compost was formed as follows: three parts of muck to one part of sand, and a proportionate quantity of potash water;* and iron filings, one peck and one-half to the load. The tall or leading shoots of the tree were shortened, the tree well scraped and trimmed, &c. The result of this application was a *full crop of pears*, and the tree making, the same year, a good growth of wood, every way healthy; the fruit, two barrels and one-half, grew fair and ripened well; and the tree has ever since borne a good crop, and continues to grow vigorously. This is, to my own mind, a sufficient test of the utility and value of the compost you recommend in your widely extended and truly valuable work.

Two years ago I had occasion to remove a Jargonelle Pear Tree which had borne fruit, and which was seven inches in diameter. Having previously prepared a hole for the same, of sufficient size and depth, I lifted the pear tree from its original situation by digging a trench five feet from the body of the tree, and of sufficient depth to enable me to cut off very smoothly all the roots of the same, leaving a large ball of earth remaining attached to the tree. Then, by means of levers, the tree was raised easily and carefully, and removed to its new location and secured, and the hole filled up with the composition recommended by you in your article on "Special Manures for

* See page 427. ED.

Fruit Trees," with the addition of the iron filings only. The tree was removed early in the month of April, and ripened, the same year, some forty fine pears, and grew well. The next season it bore nearly as many pears as it ever bore in one year previous to its removal; and this year, 1848, it will doubtless bear and ripen a larger quantity of pears than it ever has in any previous season.

Salt, as an article of manure for the *plum tree*, I have long known to be valuable, and have used to considerable extent. I shall give you, this fall, the result of several experiments which I am making with salt, charcoal, &c.; for I believe a little more practical knowledge only is wanted, by many of our agriculturists, to place the plum, the pear, and the peach, in all their varieties and richness, within the pale of every kitchen garden. Yours truly.

L. WYMAN, JR.

West Cambridge, Mass., April, 1848.

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[The foregoing is precisely to the point, and is also exactly the kind of evidence that we are most desirous of placing before our readers on this important subject. ED.]

ON TRANSPLANTING EVERGREENS.

BY T. A. S., SYRACUSE, N. Y.

THE mode of transplanting evergreens, recommended in your last number, by Mr. BARTLETT, resembles, somewhat, one adopted by myself a few years since, and which was attended with similar favorable results. Mr. BARTLETT, however, like his predecessor, Mr. THOMAS, has failed to give the *principle* on which his practice is founded, which gives to the subject the appearance of a successful *experiment* merely. By your leave I will supply that omission, and state the results of my experience, with the causes of both success and failure. My modus operandi, too, differs a little from that of Mr. B.; but that little leaves the process independent of the coincidence of a *freezing night*, and the operator at liberty to perform his work when it suits his convenience, in the proper season for transplanting.

The difficulty in removing evergreens lies in the extreme delicacy of their roots, and the fatal injury they are liable to receive from exposure to the sun and air. It is stated by LOUDON, that by the exposure of their roots, the extremities of their fibres, the *spongioles* become closed; and, unlike deciduous trees, *when once closed, they never again expand, or perform their proper functions.* That evergreen, therefore, whose roots have been exposed but for a short time to the rays of the sun, or even to the atmosphere, is deprived of its means of taking up nutriment; and however well planted and tended afterwards, its death is certain. It may survive for a time, existing on its present supply of aliment and a small portion, perhaps, drawn from the atmosphere through its leaves and the pores of the branches and body, but the result is inevitable. This theory, or principle, seems abundantly sustained by my own observation and experience.

In the fall of 1844, I wished to plant about 160 feet of hedge, of the White Cedar. A trench was dug 20 inches in width and depth, and filled half way with the soil removed, mixed with an equal portion of that from which the cedars were to be

taken, (swamp muck,) with a like admixture for filling in. The trees were then taken up, care being had to preserve the roots entire, as far as practicable, and free from bruises. They were set in a body, with the roots on the ground, as fast as taken up, and removed for planting the following morning, which was completed in the course of the day. The weather was thought favorable, it being cloudy, though attended with a dry wind. In this manner, and under such circumstances, two-thirds of my hedge was planted, great care being taken in the setting of the trees. The hedge *appeared* very fine; and already I began to experience an anticipated triumph over some of my friends whose observation or experience led them to believe that evergreens could not be removed successfully from their native forests. My triumph, however, was of short duration. Before further planting, the suggestion by Mr. LOUDON, above referred to, came under my observation. I saw at once my labor lost; that my beautiful hedge was doomed to speedy death. But the suggestion also came as a revelation. I understood the failure in ninety-nine cases in a hundred, of those who had attempted to adorn their grounds with these beautiful denizens of the wilderness, and who predicted no better result to attend my efforts.

Before proceeding to complete the work, after some reflection I adopted a mode alike, in one respect, to that recommended by Mr. BARTLETT. *A well tempered spade was ground to a fine edge*, both to facilitate the process of severing the roots and surrounding substances, and for the purpose also of making a *clean* cut, and avoiding any bruise or fracture of the roots severed; in digging, taking care also to incline the handle of the spade towards the tree, so that the *chipped* side of the cut should be on the portion *excised.* With a firm pressure of the foot, the spade was readily *driven home;* and after making the circuit of the tree, it was lifted out with the ball of earth attached, which, from the adhesive nature of the peaty soil, held by the undisturbed roots at the base of the tree, was sufficiently firm for removal the distance required. In this manner were the trees procured for the completion of the hedge. The results proved the correctness of the principle, and the mode, the adaptation of means to a given end.

Of the portion first planted, not one-third survived the ensuing summer; and these in a condition to become the prey, probably, of the winter and summer following. Of the last planting, consisting of nearly 200 trees, *every one* came through the season well, although the summer of 1845 was a trying one for newly planted trees. The fall of 1845, the portion first planted was taken up and replanted in the manner subsequently adopted; and the hedge is now all in a healthy condition.

The same season I transplanted about 75 fir trees. As these were obtained from the vicinity of Oriskany, Oneida county, some 40 or 50 miles distant from Syracuse, two or three days were required to transplant them from their old to their new homes. Trees, too, of a larger size were required, as they were designed to be planted singly, or as standards, which would also require a corresponding ball of earth attached. From the increased weight, together with distance of transportation and extra handling, this ball was liable to be shaken off; to prevent which, a sufficiently "*cold freezing night*," at a proper season for transplanting, fall or spring, might hardly be expected, nor often occur. At least, I did not wait for one; but, provided with a quantity of old *matting*, *sacking*, *canvass*, *&c.*, with a ball of

cord of proper size and strength, I took the cars one fine morning in November, and before noon was among the subjects for removal. The firs were cut and lifted in the manner practiced on the cedars. A piece of canvass of proper size was spread, and the tree with the ball attached placed in its centre, and the corners and sides drawn up snugly and fastened around the body at the base of the trunk with one end of the cord. The cord was then passed over and around the ball, and covering in different directions till the whole was made snug and firm. In this manner the desired number of trees were selected and *bagged*. A little water was then thrown on the balls, to keep them moist and render the soil more adhesive; when they were loaded on a wood car and taken to Syracuse, over not, then, the smoothest railroad in the world. The day following, some of them, and others not under several days, were planted. Of the number removed, six only were lost; and these nearly, or quite, all from defects in the disposition and situation of the roots, which could not be detected while covered with the earth taken up with them. The size of the trees was from 7 to 10 feet, and one nearly 14, in height. I have had occasion to remove some of these trees since, and found that they were bountifully supplied with fibrous roots, thrown out at the extremities of the stumps of roots cut off in taking up originally; the stumps themselves being sound to the very end, and healing over.

The process recommended by Mr. THOMAS is, probably, the only safe one for very large trees; but requires too much and unnecessary labor for those of ordinary size for transplanting. The mode given by Mr. BARTLETT would, doubtless, prove effectual, but needs a little too nice an adjustment of time and circumstances. If my own shall be deemed to have any advantages over theirs, or to encourage and facilitate the transplanting of our varied and beautiful native evergreens, (the *principle* and mode of removal is applicable to them all,) it is at your and your readers' service.

T. A. S.

Syracuse, March 12, 1848.

DESIGN FOR A SMALL COTTAGE.

OUR FRONTISPIECE shows an original design for a small cottage, in the simple, and yet somewhat ornamental style, which we think best adapted for the purpose when *wood* is the material to be employed in building.

The roof projects two feet, showing the ends of the rafters as brackets. The exterior is covered with the *vertical weather-boarding*, described in detail in vol. i, page 109. For a cottage of this class, we would be content with unplaned plank, the joints covered with the necessary strip or fillet, and the whole well painted and sanded.

A glance at the plan of the first floor, will show that its accommodation is very compactly arranged. By placing all the flues in one stack, no heat is lost in winter; and by cutting off the corners of the two principal rooms, convenient closets are afforded. As, in a house of this class, the kitchen is usually the room most constantly occupied by the family, there is no objection to the entrance to the stairs being placed within it.

The plan of the second floor shows four good bed-rooms, which, with the best bed-room on the first floor, makes five

sleeping apartments. This would enable a family, consisting of a number of persons, to live comfortably in a house of this size.

In portions of the country where timber is abundant, this cottage may be built at a cost of from $400 to $600. In this neighborhood, it is estimated to cost $750.

REVIEWS.

A MANUAL OF THE BOTANY OF THE NORTHERN STATES, *from New-England to Wisconsin, and south to Ohio and Pennsylvania, inclusive, arranged according to the Natural System; with an introduction, containing a reduction of the genera to the Linnæan artificial classes and orders, outlines of the elements of botany, a glossary, etc.;* by ASA GRAY, M. D., Professor of Natural History in Harvard University. 12mo, 710 pages. Boston and Cambridge: James Monroe & Co., 1848. ($2: to schools and academies $1.50.)

THERE are many persons who look upon botany as a kind of mysterious puzzle, to render trees and plants—things simple and beautiful in themselves—strange, complex, and "scientific." Consequently, they have a horror of it; and they live a whole lifetime, with the greatest possible desire to know something of that wide realm of beauty and interest—the vegetable kingdom,—and die almost entirely ignorant of it.

Their prejudice is one as reasonable as that of a wayward child, who would forego all the pleasure and profit of knowledge because of the, to him, unmeaning drudgery of acquiring the alphabet. For, after all, the forbidding part of botany is but the necessary alphabet, which science has contrived to enable men intelligibly to classify, arrange, and methodise a part of nature's works, in order that we may read and understand her better; just as the alphabet, and the rudimentary lessons which follow it, are only the necessary stepping-stones to enable us to stand high enough to hold converse with the otherwise sealed domain of written thoughts.

And is it not worth a few days labor,—this science, which enables us to understand not only the history, the names, the associations, and the virtues of all plants, but also the curious relations, the admirable laws which govern their structure, and the wonderful part which they bear in the economy of the universe? Is it not worth while to become familiar with a study which, wherever our steps may lead us, from high, cold mountain tops, crusted over with only mosses and lichens, to deep, warm tropical valleys, where the luxuriance of vegetable forms almost bewilder the senses, still furnishes us with new subjects for consideration; a study that often makes a field-path, or a ramble by the way-side, that is dull and mean in the eyes of the unlearned, rich in interest and beauty to him who finds a botanical gem under his feet, that fills his soul with delight. Truly has it been said, that more than half the world is stone-blind. Ennui consumes them, and life is dull and vapid! They have no more notion of the wealth of interest that covers and embroiders this *dull* earth which they despise, than they have of the true motions of the binary stars!

Seriously, there is no thinking person whose home is in the country, and who loves nature,—much to be pitied are those who live in the country and not love her,—who would not find a great and unfailing resource in this beautiful science. The difference between knowing plants and trees as a naturalist knows them, or as they are

known by the uneducated, is not unlike the difference between a familiar acquaintance with every individual of a large collection of agreeable people, or knowing, perhaps, the *names* merely of a few strangers in the crowd. The country, the fields, the forests, the mountains, have a positively different, and altogether new meaning, to him who sees, not only the general grandeur and beauty of the landscape, but, also, studies with delight every detail of fern, shrub or forest tree, in the foreground.

Suppose, for example, two persons clambering the breezy hill-side of a valley, in the northern states, in the month of June. They both see, here and there, large groups and masses of a striking shrub, with glossy evergreen leaves, and large clusters of white or pale flesh-coloured blossoms. To one of these persons, this shrub is only "Laurel; a sort of *pisen* thing—dreadful hard wood." To the other, it is the *Kalmia latifolia*,—the broad leaved, or Mountain Laurel; not, indeed, the tree laurel of the ancient poets,—but borrowing the title from a slight resemblance in its unfading foliage. It commemorates the memory of PETER KALM, the pupil of LINNÆUS, who visited this country a century ago; and who could not, in his letters to his great master, sufficiently express his delight at seeing *an hundred acres* of it, blossoming like a giant's garden in the new world's wilderness. Its delicate blossom, shaped like a miniature parasol, is full of curious and beautiful points of structure. Then, as it belongs to the same natural family as the *Rhododendron*, he recalls the reputed poisonous qualities of the *honey* of some of the tribe. He remembers the story told by XENOPHON, of the army of the 10,000 Greeks in their retreat, vast numbers of whom lay about the ground for hours in their camp as if dead, simply from eating the Rhododendron honey. And this, and fifty other curious little interesting facts, pass through his mind; and he makes the circuit of the world, while he rests for a moment in his ramble, upon the associations that hang about a bit of mountain laurel.

Every intelligent farmer's son and daughter ought to be somewhat familiar with natural history; not only for the profit and pleasure which they themselves would derive from it; not only that it enlarges the mind, and gives the student a better knowledge of the great purposes of the creation; but because *they* are the proper and natural guardians and keepers of nature's secrets. To people who live in towns, belong the mysteries of great cities; mysteries, too, from which one does not always learn to find the heart lighter, or one's trust in human nature stronger. But to country people belong the mysteries of the rural life, the language and habits of birds and insects, the antique geological secrets of the hills and mountains, the inexhaustible lore of the woods, forests, and fields; and, we are bound to add, that these are mysteries that exercise a benign influence on the mind, that calm the excited, restless soul of man, and make the heart swell with love to the good God, and all his creatures.

These studies are also the proper *accomplishments* of the country. They are not only the solid underlayers of fields of profound thought which, closely pursued, might occupy man forever; but they furnish, in the hands of those who live in the country and are familiar with them, frequent and agreeable topics of conversation. They are a natural offset to the *news of society* which our guests bring us from town; they furnish us an exchange fresher and better than their own coin, with which we can pay back these "dwellers in cities, and sitters upon many divans."

There is, we may say, *en passant*, an error, into which smatterers in science not unfrequently fall, that beginners ought to guard against. This is *pedantry;* a fondness for display of one's knowledge by introducing, on every possible occasion, hard technical names, worse than "sounding brass" in the ears of the majority of listeners. This is an insufferable piece of bad taste, to say the least of it; not a whit more pardonable than that of the shoolmaster, who astonishes his rustic neighbors with those hard words, of an indefinite number of syllables, which he had made especial search after in his dictionary. He who possesses knowledge on any subject not shared by those about him, will always find a demand made for it when it is needed; and *then* it will be the better appreciated and understood, from its not being intruded at inappropriate seasons. Only a very young botanist, therefore, will cry out *Hypericum perforatum*, whenever he passes through a field filled with Johnswort!

We must not forget, in this rambling sort of gossip which flows from our pen, the work before us, or its merits. To those who know Prof. GRAY, it is almost needless to say anything. To those who do not, we may remark, that he is both, one of the most profound botanists, and one of the most acute botanical writers of the age, in any country. This work, therefore, which has cost him much labor and study, (for it is a book full of *facts*, which must be, and have been, *verified* step by step,) is, we are not surprised to find, the most complete Manual of Botany of the northern United States ever published. Its purpose is to enable the student to ascertain the name of, or identify any and every plant to be found growing wild from the northeastern boundary to Wisconsin, and south to Maryland; to learn its natural family, its habit of growth, and something of its history. It is what the Germans significantly call a "hand-book;" one that the student may carry under his arm into the fields, and, with a little practice, very quickly find out the name of any new plant or tree that is unknown to him.

In order to render this process as easy as possible, the author has endeavored to avoid, in his descriptions, the use of technical words whenever those in common use would apply; he has, by *italicising* the *leading traits* in the description of a species, enabled us, much more readily than before, to distinguish it from such other species as most nearly resemble it; and he has arranged all those species most nearly alike into *definite* groups or sections, to simplify the task of analysis.

We would very gladly, if our space allowed us, give examples of this excellent treatment of the subject from the work itself. But we feel that this is quite unnecessary; for the work is one of such superior character that it will directly become the standard manual of the northern states. Dr. GRAY says, in the preface, that it is intended chiefly "for the use of students and practical botanists." We hope there are *thousands* among our own readers, especially young persons, who are yet neither students nor practical botanists, but who will speedily become so,—and, after familiarising themselves with some good elementary work,* will make this "New Botany of the Northern States" their intimate companion, till they know something of the "secret history" of every plant that grows or blossoms within twenty miles of their country home.

* Such as *Gray's Botanical Text-book, Lindley's School Botany, Lindley's Ladies' Botany*, etc.

THE FAMILY KITCHEN GARDENER—*containing plain and accurate descriptions of all the different species and varieties of culinary vegetables, and the best mode of cultivating them, in the garden or under glass, etc.;* by ROBERT BUIST, of Philadelphia. New-York: published by J. C. Riker. 12mo., 216 pages. 1847.

THIS is a cheap duodecimo volume, the purpose of which is very well explained by the title page.

It is a little work, with scarcely a superfluous word, but well stored instead with plain, sensible directions on the cultivation and care of the kitchen garden. The author writes as an intelligent writer should, who knows by heart, and by long practice, all that he wishes to impart to his readers; and the book is, therefore, very naturally, one that we can recommend with great confidence as second in usefulness to none of its kind yet published in this country.

Those who are not adepts in kitchen gardening, and wish to add to their stock of knowledge; those who are beginners, and wish to learn everything, and those who are so little familiar as still to need a *prompter* to tell the what, and when, and how to plant, that their tables may have a supply of all those good, nutritious, wholesome vegetables that go to make up the daily catalogue of a good dinner, will find *Buist's Family Kitchen Gardener* as useful and as indispensable as the almanac itself.

FOREIGN NOTICES.

FOREIGN NOTICES OF NEW FRUITS.—Mr. THOMAS RIVERS, of Sawbridgeworth, Herts., is, as many of our readers are aware, an English nurseryman, who devotes himself more intently to collecting and propagating fine and rare fruits than, perhaps, any other in Great Britain. The late *Supplement* to his *Catalogue of Fruits*, which we have before us, contains a number of interesting remarks on new or rare varieties, which we extract for the benefit of those of our readers who may not have seen that pamphlet.

We believe nearly all of those foreign varieties named, are now in the country, or have been imported this spring, by various amateurs and commercial growers in the United States; though, perhaps, very few of them will be offered for sale until the next autumn.

It will be seen that there are several of our American fruits noticed; among others, the *Jefferson* Plum. We are glad to find this most delicious variety maintains, in England, the high reputation which we have always claimed for it. It will be seen, by comparison, that many fruits ripen a month or more later in the cool, humid climate of England than in the middle states.

PEARS.—In a recent tour in Belgium I was enabled, by a special introduction, to see the garden of (I lament to say the late,) Major Esperen. This gentleman devoted many years of his life to the raising of new fruits from seed, more particularly pears. He succeeded in giving to the gardening world some very valuable late pears. Most of these are enumerated in my Catalogue; but I am now enabled to recommend them with the greatest confidence, having seen the parent trees in full bearing this present autumn. The first in my note-book is—

Belle après Noel; or Belle de Noel (Esperen). This is a full sized pear, about the size of the Brown Beurré; melting and high flavored, ripening, according to circumstances of soil and season, from December to the end of January; the tree very hardy, and a good bearer, 5s.*

Bergamotte d'Esperen. A pear of medium size, inclining to the shape of the Bergamot pear; melting, high flavored, and in perfection from March to the end of April; tree robust, hardy, and a good bearer, 3s. 6d.

Beurré Bretonneau (Esperen). A new sort, not in my Catalogue; fruit oval, full sized, melting and high flavored; colour green, spotted with brown; in perfection from January to March; tree robust, hardy, and a great bearer, 10s. 6d.†

Bezi d'Esperen. Fruit full sized, slightly turbinated, melting, and of good flavor; in season from December to the end of January; tree of not very vigorous growth, but a good bearer, 3s. 6d.

Elise d'Heyst (Esperen). Fruit of medium size, melting and high flavored; in season from March to the end of April, and even till the middle of May, if kept in a cool fruit room. This pear requires a warm and generous soil; in cold soils it is often not first rate, 3s. 6d.

Fondante de Malines (Esperen). Fruit of medi-

* Those at 5s. each [Sterling—about $1 25: ED.] will be supplied as dwarfs or pyramidal trees on the pear stock, or on the quince at that price; those at 3s. 6d. as dwarfs or pyramidal trees, on the pear stock only, at that price. Strong pyramidal trees on the quince, of these sorts, are 5s. each.

† On the pear stock only.

um size, melting and good; season from January to February; tree very fertile and vigorous, 3s. 6d.

Josephine de Malines (Esperen). This is, I believe, a seedling from the Passe Colmar, which it much resembles in habit; fruit rather smaller than those of Passe Colmar; green or greenish yellow when ripe, melting and excellent; season from March to May. Like all very late pears, this requires a warm and rather light soil when on the pear stock; it seems to do well on quince, and will doubtless ripen in cold soils, and situations unfavorable to it on the pear stock. The parent tree of this variety, when I saw it, formed a beautiful pyramid, 12 feet high, and covered with fruit, 5s.

Napoleon d'Hiver (Esperen). Fruit large, turbinated, melting; season January to February; tree very robust, hardy, and a great bearer. The parent tree of this variety, apparently some ten or twelve years old, was loaded with fine fruit, 5s.

Soldat d'Esperen, or Soldat Laboureur (Esperen). Fruit large and turbinated, only half melting, but high flavored and excellent; season from January to February; tree very robust, and a great bearer. I was much delighted with the beauty of the parent tree of this variety; it formed a handsome pyramid, on which its large fruit hung at regular distances, almost as if placed there by the hand of the cultivator, 3s. 6d.

Orpheline, or Soldat Laboureur of the French, is a totally different pear to the above. It is, in my opinion, a variety of the Beurré d'Aremberg, and has, indeed, been disseminated very largely under that name; but the Beurré d'Aremberg which I received from the Horticultural Society, some fifteen years since, although of the same race, seems different. I have paid close attention to these varieties these three years past, and find the latter to produce numerous thorns, both in my specimen tree and in all the young trees. The fruit, also, although much like the former, and of the same flavor, is smaller; the trees are so dissimilar in habit as to be distinguished by the most casual observer. On the Orpheline or Soldat Laboureur, not a thorn is ever to be seen, and the trees are more robust in their growth; both succeed admirably on the quince stock. At present I am induced to think them distinct, and to consider the latter as a superior variety, although Mr. Thompson, of the Horticultural Society, is inclined to differ from me. I found, also, in Belgium, two varieties of this pear—one known as Beurré d'Aremberg, or Beurré Deschamps, and the other as Orpheline d'Enghien; neither of these were the Glout Morceau, known universally in France as Beurré d'Aremberg.

Susette de Bavay (Esperen). Fruit of medium size, knobby and irregular in shape, something like the Ne plus Meuris; flesh melting, high flavored and excellent; season from March to May; a pear of the highest excellence; tree very vigorous and very fertile. This variety in particular deserves a place in every collection, 3s. 6d.

All the above will succeed well in the South of England, and in warm situations in the Midland Counties, as pyramids or espaliers; but in the North, it will be advisable to give them a south-west or south-east wall.

Triomphe de Jodoigne. This pear was raised a short time since by M. Bouvier (since deceased,) a great pear amateur at Jodoigne, in Belgium; it is one of the very largest of our melting pears, as large, or even larger, than the Beurré Diel; flesh melting and excellent, without the musky flavor peculiar to that variety; season December; tree astonishingly vigorous and robust, 5s.

In addition to the foregoing, there are two other varieties of late pears well worthy of attention; they are not exactly new, but are really good varieties.

Beurré gris d'Hiver nouveau. In shape much like the Easter Beurré, and equal to it in size. This is a most abundant bearer, as a pyramid on the quince, flesh melting and high flavored, and ripens from the end of December to the end of January, or later.

Crassane d'Hiver (Brunont or Bruneau). This is far superior to the Winter Crassane of the late Mr. Knight, both in size and flavor, being a melting pear of first rate quality; it bears freely as a pyramid on the quince, ripening in January and February, and in some seasons will keep till March.

A few directions for summer pruning pyramidal pear trees will not, perhaps, here be out of place. I gathered some experience during my tour in Belgium and France, which I feel happy to impart. I have, in the "Miniature Fruit Garden," given directions to shorten *all* the shoots of pyramidal pear trees towards the end of summer; if root pruning is closely attended to, I am still inclined to consider it best to do so; but if the trees are suffered to grow naturally, a modification of the pinching system of Monsieur Cappe, as given in the *Gardener's Chronicle*, No. 28, 1847, may be followed with advantage.

To follow this method, close attention must be paid to the trees early in June, and every shoot on the horizontal branches, except the leading shoot on *each branch*, must be pinched off to within three or four buds of its base, the foreright shoot on each branch must be left to exhaust the tree of its superabundant sap. In Belgium, I observed all these foreright shoots on the trees towards the end of August, and I was told that they were left to exhaust the tree of its sap, and were not removed till the winter pruning, when they were shortened to within four or five buds. I am inclined, however, to think that it would be an improvement to shorten them towards the end of August, as the buds would then swell and prepare themselves to form, in the following season, bloom buds. The leading shoot of the tree may also then be shortened; this gives pyramidal trees a dressed and cultivated appearance, and exposes the fruit to the full influence of the sun and air. I must say, however, that I prefer root pruning to pruning of the shoots, and the trees of Monsieur Cappe, in the Jardin des Plantes, at Paris, confirmed me in this opinion; these trees are not, strictly speaking, pyramidal trees; they are rather conical trees, with very broad bases, requiring much more room than pyramids. No trees can be more beautiful as to the equal distribution of their branches, but they are sadly lacking in a tendency to fruitfulness. I think I write the truth when I say, that in this fruitful season not more

than half the trees had fruit upon them, and this after many years of careful cultivation; and I was informed by a friend living near the spot, that this was the first year they had borne any quantity of fruit. It is indeed a joke among the French gardeners, probably dictated by a little envy, that the trees of M. Cappe are "exceedingly productive—in leaves and shoots!"

On the Continent root pruning is not known or thought of, and if broached it would probably be excessively ridiculed; but the trees of M. Cappe, with their over luxuriance, I have no doubt would be much benefitted by it, in spite of the dry soil and climate of Paris. I was informed that all his trees were on the pear stock, which will account for their vigorous growth.

The quenouille, or tying down system, is now quite out of fashion in France, and in truth it does look very barbarous and unnatural; the trees trained in this manner in the Potagerie, at Versailles, are mostly on quince stocks; they are from twenty to forty years old, and are very productive, but very ugly; all the shoots from the horizontal and depressed branches had been cropped off apparently in July, as Monsieur Puteau, the director, is, I believe, adverse to the pinching system of M. Cappe. I did not observe a single quenouille in Belgium, all were pyramids, even in the gardens of the cottagers; and in general, these were very beautiful and productive trees. In many cases, when on the pear stock they were too luxuriant, and required root pruning, but this I could not make the gardeners comprehend.

If the article in the *Gardener's Chronicle*, No. 28, 1847, is read attentively, it will be seen that M. Cappe is constantly at war with the heads of his trees; his pinched shoots will often break again and again, and give him much trouble. I closely examined some of his trees, of sorts which I knew to be, under ordinary management, shy bearers, and found them, to use the language of my note book, "entirely bare of fruit and fruit buds;" this was towards the end of last August.

The pinching system of M. Cappe, without root pruning, is, therefore, objectionable for small gardens, on account of the trees requiring much room, and becoming difficult to manage from their great size and height; for many of his trees are more than 15 feet high. The leading shoots of the horizontal branches of his trees are often left in the winter pruning nearly one foot in length; I observed this on the trees of Beurré Diel, De Curé, Beurré Rance, &c. &c., so that the tree soon spread over a considerable surface; a tree of Louise Bonne, however, was most beautiful and compact; also a tree of Beurré d'Amanlis, which was covered with fruit and fruit buds. Sans Pepin was bare of fruit, but a most regular and beautiful tree. It appears to me that the pinching system, coupled with root pruning, will be all that can be desired in pear culture.

For large gardens, the broad based conical trees, on the pinching system of M. Cappe, with triennial or quartennial root pruning, will be found advantageous; for smaller gardens, the more closely pruned pyramidal or cypress-like trees, with biennial or annual root pruning, are sure to be annual sources of pleasure, as they will be always within the reach of the amateur pruner, who can thus give his trees an occasional pinch without inconvenience.

Cherries.—The culture of the cherry on the Cerasus Mahaleb has been so successful here the past season, that I am induced further to recommend it. With nets over my small bushes, I kept most of the finer varieties till August; the wasps then committed such ravages that I was obliged to gather nearly all; but, for the sake of experiment, I covered some trees of the Murello and Late Duke Cherries with cheap muslin. This preserved the fruit in perfection till the end of September. Cherries may now be made part of our desserts from May, commencing with the Cerise Indulle, till late in October. There are some new early cherries of great merit, particularly one called Belle d'Orleans, ripening early in June, large, sweet and excellent; of this I have not yet propagated any plants, as it bore fruit last summer for the first time. I may here mention that in rich soils Dwarf Cherries on the Cerasus Mahaleb grow with extreme vigor for three or four years; in such cases they should be annually root pruned, they will then soon become compact, fertile bushes. I will now notice a few sorts that fruited here the past summer, and of which I tasted and noted their qualities.

Bigarreau de Hildersheim. I ate the fruit of this variety, preserved under muslin, September 10; its flesh was firm, good and sweet, and would have (as I have written in my note book) "remained good till the end of the month."

Cerise Indulle, or Early May, is a small sub-acid cherry, agreeable and valuable for its extreme earliness, as it ripens in some seasons towards the end of May; it succeeds admirably on the Mahaleb stock, and is very valuable for forcing in pots, forming a small, compact bush.

Downer's Late Red. This is an American variety, sweet and good, and ripens from eight to ten days after the May Duke.

Louis Philippe. A cherry much like the Kentish, but sweet and very refreshing. A great bearer, and forms a pretty fertile bush.

The Madison Bigarreau is an American variety; flesh soft, rich and juicy. It is an excellent bearer on the Mahaleb, and in season just before the Bigarreau.

Reine Hortense, Monstreuse de Bavay, Belle de Bavay, 16 à la Livre, Belle de Petit Brie—for, like most valuable varieties of fruits, it has numerous synoyms—is a first rate variety; very large, and apparently a hybrid between the May Duke and Kentish; flesh soft, very juicy, sweet and refreshing; ripening about a fortnight after the May Duke, and may be kept on the tree under a muslin cover till late in August.

Tardive de Mons, or Merveille de Septembre, is one of the latest cherries known; fruit rather small, flesh very firm, rather dry, and very sweet. I gathered the fruit from my specimen tree the 20th of this present month (October;) they were perfectly sound.

Currants.—A few years since, Mr. May, of Leeming-lane, near Ripon, Yorkshire, advertised

a currant under the name of "May's Victoria;" which, I believe, he procured from the gardens at Raby Castle; this has recently been described as the "Raby Castle Currant." In a visit to the north, a short time since, I was informed that this currant has been long known in the neighborhood of Hexham and Newcastle as the "Houghton Castle Currant;" and that it was sent from that district some years since to the gardens at Raby Castle. This is undoubtedly the same as the Goliath; it has, therefore, at the present time four names. It is an excellent late currant.

Plums.—Among the novelties in this family the following have fruited here abundantly from pyramidal trees in the open quarters:

Bleecker's Scarlet. or Lombard, an American variety, one of the hardiest and most prolific sorts I have yet seen; fruit large, and of a purplish red; ripe September 16th; not quite first rate, but very good.

De Montfort. This is much like Royale Hative, but larger; ripe middle of August; exceedingly rich and good.

Imperiale de Milan. Fruit large, oval, and of a deep purple; ripe October 12th; juicy, sugary, and excellent.

Denniston's Superb. An American plum, very hardy and robust in its habit, and one of the greatest bearers we have; fruit green, about the size of the Green Gage, but slightly oval; a good plum, but not equal to the Green Gage in flavor; it is, however, valuable on account of its great productiveness, and also because it ripens from a week to ten days before the Green Gage.

Isabella. Fruit large, red, handsome, and very good; ripe the middle of September; flesh parts freely from the stone.

Jefferson. I ate my fruit of this fine plum, preserved on the tree in a muslin bag, October 12th, from a dwarf in the open ground; nothing can be imagined more delicious; the moment it was bitten the juice poured out; flavor rich and refreshing, not too luscious, as is often the case with a Green Gage; colour golden yellow, spotted with brown; in size nearly equal to Coe's Golden Drop, from which I should say it was raised, as the trees closely resemble it in their leaves and shoots.

Mamelonne. This is a plum raised by M. Sageret, a gardener, near Paris; it is almost grotesque in its shape; instead of being depressed at the stalk, as most round plums are, it has a small nipple-like protuberance, and some of its fruit are irregularly knobbed; it is of the Green Gage family and much like it in flavor, parting freely from the stone and ripening ten or twelve days before it; colour green, densely spotted with red.

Peach Plum. This is a large red plum, very handsome, good, and a great bearer; it ripened here about the middle of August.

Purple Favorite. An American plum, ripe September 12th; purple, large, and very handsome, roundish, in shape like La Royale; a very excellent and hardy variety.

Quetsche, St Martin's. One of our best and hardiest late plums. I gathered my fruit October 20th; colour pale yellow, spotted with brown; in flavor it slightly resembles the Green Gage; very juicy and good; shape oval; about equal in size to the Imperatrice, or perhaps a little larger.

Red Gage. An American plum, rather small, red, ripe beginning of September, agreeable.

Reine Claude de Bavay. I saw the parent tree, a standard of this very fine plum, in the garden of the late Major Esperen at Malines, towards the end of last August. It is apparently about fifteen years old; it was covered with fine fruit; they were indeed more numerous than the leaves. I ate of fruit produced here on a dwarf standard, preserved under muslin, October 12th, perfectly fresh and unshrivelled; shape roundish oval; colour greenish yellow, spotted with red; flesh rather firmer than that of Jefferson, but juicy, sugary, rich, and excellent; size between the Green Gage and Washington; indeed it much resembles the latter in shape; it has roundish shining leaves and smooth shoots, very much resembling the Washington, only that the former are smaller and the latter more slender, and is doubtless a hybrid between that and the Green Gage. To this plum hangs a not very agreeable tale. In 1843 I received it from France, and in the autumn of 1845, having a report from a friend on the Continent of its great excellence, I advertised plants of it for sale. Not having enough, I bought 100 from a most honorable nurseryman in France. When they arrived I felt some doubts, owing to their having prominent pointed buds. Before I sold any, I wrote to him expressing my doubts. In reply, I received an invoice from a nurseryman at Ghent, dated 1843, in which some plants were charged to him at a high price as Reine Claude de Bavay. As this person at Ghent had stated that he alone had received this plum from Major Esperen, my scruples were quieted; but when some plants I had left unsold came into leaf, in the spring of 1846, I found they were Coe's Golden Drop. In the autumn of 1846, feeling very anxious that my friends should have the true sort, and then beginning to doubt even those I had first received from France, I wrote to Mr. Van Houtte, of Ghent, for 100 of the true sort, to replace those which I had sent out incorrect in 1845. I sent these to my friends with the fullest conviction they were correct, as Mr. Van Houtte assured me they were; and as Malines is so short a distance from Ghent, I concluded that they *must be*. My chagrin may therefore be imagined when these plants, and grafts from them, came into leaf, in the spring of 1847, to find them, to all appearance, nothing but our old Green Gage, differing in leaves and shoots from those I received first from France, (the true sort,) which, as I have before stated, much resembles the Washington in habit. Mr. Low, of Clapton, also advertised plants of Reine Claude de Bavay in the autumn of 1845 or spring of 1846. I bought some plants to ascertain if they were correct, i. e., if they resembled in habit what I considered to be the true sort, with broad shining leaves. These proved to be the Green Gage; consequently, I am led to assume that all those sold by Mr. Low were the same. There are, therefore, in France, Belgium and England, three* varieties of plums bearing the

* I should think very probably there are four or five; for I saw a bed of plants in a nursery in Ghent under the name, which contained four or five sorts.

name of Reine Claude de Bavay, viz., the Green Gage, Coe's Golden Drop, and the true sort. The uncertainty respecting this plum gave me great annoyance last summer, and I determined upon a journey to Malines to see the parent tree when in fruit. When I arrived at Malines I found Major Esperen recently deceased, and I much feared that my attempt to get a view of the tree would be fruitless. I obtained, however, through the kindness of Mr. Van Houtte, an introduction to Madame Esperen, who seemed to take pleasure in pointing out to me the numerous proofs of the horticultural skill of her departed husband. I may here mention, merely to show how superiorly the Belgians and French manage their fruit trees in the open quarters (I cannot give them equal credit for wall trees,) that two small gardens here, not more than one rood each, contained some hundreds of pyramidal pears, plums and apples, nearly all perfect specimens, and covered with fruit. To return to our plum. I found, on inquiry of Mr. Van Houtte, that he had bought all the plants he had sold; in fact, he said, that having no nursery for hardy trees, it was his custom to buy all plants of that description. He was exceedingly loth to believe that he had been cheated; indeed, I think that even now he scarcely believes it, for he thinks that we cannot judge by their leaves or shoots if a fruit tree is correct to name. I can only say that I am able to distinguish all the popular sorts of plums, pears and cherries, by their leaves and shoots; and I am not alone in this, for every active foreman of the fruit tree department in large nurseries can do the same. To use a mild expression for cheating, Mr. Van Houtte has been victimised, has unconsciously victimised myself and others; and I have served some of my friends in like manner.

I must now beg those friends to whom I sent a tree last planting season, to replace the suspected one sent the year before, to oblige me with a line. I will then send them a plant of my own grafting, true, and nothing else but true. I have fortunately sold to many friends the sort I first received, which is true, and kept a list of those to whom I sent the trees that I bought, so that the error can and shall be corrected.

The October Green Gage, Reine Claude d'Octobre, is so much like Reine Claude Tardive as not to be worth keeping distinct; this is a rather small round plum, exactly like the Green Gage in colour and shape; flesh melting and rich, with the Green Gage flavor, but not quite so juicy; colour green, spotted with red; flesh parts freely from the stone. I ate my fruit October 22d, and found them excellent; it is perfectly hardy, and its fruit may be preserved on the tree, if the season is not very wet, till November.

Rivers' Early No. 1. I mention this plum only because it has invariably proved excellent, and on account of my having given it a name; it will, in future, be called "Rivers' Early Favorite;" its shoots are downy, it ripens a trifle earlier than the following, and in flavor is, I think, a little superior.

Rivers' Early No. 2. This is the hardiest and most prolific of all our early plums; in fact, it *always* bears a crop; I purpose to call it "Rivers' Early Prolific." In Covent Garden market, in July last, the fruit sold readily at 7s. per sieve, containing about half a bushel. The shoots of this are smooth although it was raised, like the preceding, from Precoce de Tours, which has downy shoots; it may be called the Market Gardener's Plum, *par excellence*, on account of its great productiveness.

Yellow Magnum Bonum. This is an American plum of extreme hardiness, very large, oval, good, but not quite first rate; its flesh clings to the stone. My fruit were ripe September 7; it seems to bear much more freely, as a standard or pyramid, than our old white Magnum Bonum.

Raspberries.—The Perpetual Raspberry in my soil has not succeeded in bearing an autumnal crop. In the low, moist situation I saw it occupying in Suffolk it succeeded admirably; but a new variety I introduced last season from the Continent will entirely supersede all our autumnal bearing raspberries; this is called the Large-Fruited Monthly Raspberry. I have at this moment, October 25, a bed of these raspberries covered with fruit nearly as large as the Red Antwerp, and on the same plants are green fruit and abundance of blossoms; these were planted in March, and each cane cut down close to the ground; owing to this I had no summer crop, but the young canes commenced bearing towards the end of August, and have ever since been covered with fruit. From every bud a lateral shoot is produced, which in succession give their fruit, and the plant soon assumes a conical shape; or perhaps it will be better described by saying that it is like a small spruce fir, with regular tiers of fruit-bearing branches. To obtain a summer as well as an autumnal crop, the canes, all but one, may be cut down close to the ground; this single cane will produce a crop in July, and those cut down will produce abundantly in autumn. I regret to say that my limited stock will not, I fear, allow me to send out plants this season.

I have an idea that potted plants, well attended to, by giving them liquid manure, might, by having them placed under glass with a gentle heat, be made to give their fruit till late in December.

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Van Houtte's New Phloxes.—Among the many gay flowers which, at present, add so much to the ornament of our gardens, the *Phloxes* are especially worthy of note, for their pretty clusters or panicles of the most brilliantly shaded blossoms. These charming plants begin to bloom at a time when flowers are yet rare in the garden; thus, in the spring we have the dwarf kinds, such as *P. verna, procumbens, subulata, setacea, amœna*, which make beautiful borders; while in July and September there are the taller varieties, which display, in the midst of the flower beds, the brilliant corollas.

M. Van Houtte, of Ghent, to whom we owe the beautiful variety which bears his name, (*Phlox Van Houtii,*) has succeeded in raising four other fine kinds. They are—1st, *Phlox "Standard of Perfection,"* with bi-coloured flowers, of white and cobalt blue, and arranged in magnificent pyramids; 2d, *P. Goëthe*, of a pure white, dashed with ash-coloured lilac; 3d, *P. Reine Louise*, pure white,

regularly and neatly striped with delicate ashes-of-rose colour; 4th,—this, in allusion, no doubt, to the subtle and delicate *esprit* of our great diplomatist, M. Van Houtte has named *P. Talleyrand*, a variety to which it is impossible to assign any fixed character; the flowers are shaded in white and rose; sometimes striped, dashed, &c., on the same stem. These four new varieties will, ere long, enrich our already fine collections, for which we are, in a great measure, indebted to the skilful Belgian horticulturist.—*Revue Horticole.*

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Marguerite d'Anjou Rose.—In giving, last year, in the October number of this journal, a description of the *Glorie d'Angers* rose, obtained by M. Boyau, horticulturist, I said that we should have, this year, another variety not less remarkable. And this opinion has been confirmed by all horticultural amateurs who have seen the *Marguerite d'Anjou* rose; sister to the *Glorie d'Angers*, and offspring of *Edward Jesse*. Of three kinds raised from seed, two proved to be roses of the first merit.

This new rose is a *hybrid perpetual* (remontante,) but seems, nevertheless, to bear some analogy to the *Ile de Bourbon* roses. It is very fragrant, of a good habit, very double, and the petals finely imbricated, (overlaid.) It is nearly two *inches* in diameter. The colouring is brilliant,—a fine satiny-rose colour; the outer leaves are of a fine shade of gray (gris de lin) on the surface, and become white on the lower part of the petal. The divisions of the calyx are lightly furnished with thorns, and are sometimes leafy. The ovary is conical at the base, and slightly swelled. The branches are quite vigorous, and almost without thorns; the leaves abundant, and of a bright green. The whole forms a fine well shaped bush. It blooms abundantly, is perpetual, and the flowers are disposed in threes and fives on the same stem or bunch.

It will be offered for sale on the first of November next. *Baptiste Desportes. Angers, in Revue Horticole.*

DOMESTIC NOTICES.

Rules of American Pomology—as adopted by the Horticultural Societies of Massachusetts, Pennsylvania, Cincinnati, St. Louis, Albany and Rensselaer, New-Haven, and by the Ohio State Fruit Committee, and the New-Haven Pomological Society.

[We re-publish the following *corrected* copy of these rules, which were intended to follow our remarks in the March No., p. 436, but were crowded out. Ed.]

1. No new Seedling Fruit shall be entitled to a name, or to pomological recommendation, which is not at least equal to any similar varieties of the first rank already known; or which, if only of second rate flavor, is so decidedly superior in vigor, hardiness, or productiveness, to varieties of the same character already known, as to render it well worthy of cultivation.

2. The originator, first grower, or he who first makes known a new Native variety of merit, shall be entitled to suggest a name for such variety; which name, if a suitable one, (i. e., coming within the rules of nomenclature,) shall be adopted by the writer describing the fruit for the first time. But if the name proposed is inappropriate, or does not come within the rules, then the describer shall be at liberty to give a name.

3. No new Native Fruit shall be considered as named until the same has been accurately described, in pomological terms, by some competent person conversant with existing varieties; some Pomologist of reputation, or the Standing Fruit Committee of some established Horticultural Society.

4. The description shall embrace the following particulars:—The size, form, and exterior colour; the texture and colour of the flesh; the flavor and time of ripening of the fruit, with the addition, in Stone Fruits, of the size of the stone, adherence or non-adherence of the flesh, form of the suture, and the hollow at the stem; and in Kernel Fruits, of the size of the core and seeds, the length, position, and insertion of the stalk, and form of the eye. In Peaches, the form of the leaf glands, and size of blossoms. In Grapes, the form of the bunches; and in Strawberries, the character of the blossoms, whether staminate or pistillate: and also where there is any marked character in the foliage, growth of the young wood, or bearing tree, the same shall be given.

5. The name of the new variety shall not be considered as established until the description shall have been published in at least one horticultural or one agricultural journal, or some pomological work of large circulation and acknowledged standard character.

6. In giving names to newly originated varieties, all harsh, vulgar, or inelegant names shall be avoided, such as "Sheepnose," "Hogpen," &c.

7. No new names shall be given, which consist of more than two words, excepting only when the originator's name is added. [Thus all unnecessarily long titles, such as "New Large Black Bigarreau," "Beurre gris d'hiver nouveau," will be avoided.]

8. Characteristic names, or those in some way descriptive of the qualities, origin, or habit of fruit or tree, shall be preferred. They may be either of intrinsic properties, as "Golden Sweeting," "Downer's Late," &c.; or of local origin, as "Newtown Pippin," "Hudson Gage;" of the season of ripening, as "Early Scarlet," "Frost Gage;" of the form and colour, as "Golden Drop," "Blue Pearmain;" or which commemorate a particular era, place, or person, as "Tippecanoe," "La Grange," "Baldwin," or any other titles which may be significantly applied.

9. Before giving a name to a new fruit, its qualities should be decided by at least two season's experience; and no new fruit can be safely recommended for general cultivation, until the same has been tested and found valuable in more than one locality.

10. When two persons have named or described a new native fruit, then the name and description first published, if according to the rules herein indicated, shall have the priority.

11. No person introducing new fruits from abroad, shall be allowed to rechristen the same, or give them his own name; but shall submit the same to some competent pomologist to ascertain the true name.

12. In deciding the names of fruits already described, the "Catalogue of the London Horticultural Society," shall be considered the standard European authority; and Downing's "Fruits and Fruit Trees of America," the standard American authority. ....

PURCHASE OF MT. VERNON.—We have received from our correspondent, WM. D. BRACKENBRIDGE, Esq., of Washington, a circular entitled—"Documents relating to the proposed purchase of Mount Vernon by the citizens of the United States, in order that they may at all times have a legal and indisputable right to visit the grounds, mansion and tomb of WASHINGTON."

Mount Vernon is a spot endeared by associations, the most sacred and the most profound to the heart of every American. Up to this time, it has remained in the possession of the Washington family, and is now the property of Mrs. JANE C. WASHINGTON. It remains very much in the same condition, as respects buildings, trees, and grounds, as when left by its first distinguished possessor; but the grounds and the buildings have long shown evidences of decay and dilapidation, greatly to be deplored. It is, therefore, most strongly to be desired, that this estate should become *public property;* that it should be restored to, and kept in the best condition; that, in short, it should forever remain a monument—at once the most touching, and the most beautiful of all monuments, to the memory of the great and good man, whose private feelings and domestic sympathies—wherever his public duties called him—were always centered in this, his beloved Mount Vernon.

From this circular, we gather that a correspondence has been carried on between the present possessor of Mount Vernon and the Hon. Mr. DALLAS, and a number of distinguished senators; the result of which, is that the estate is offered to the public for $100,000 in U. S. six per cent. stock. In order to carry out the plan based upon this, the following Memorial is being circulated, to petition Congress to appropriate the necessary sum:

"MEMORIAL of AMERICAN CITIZENS, praying that MOUNT VERNON may become the property of the United States, in order that the MANSION and favorite GROUNDS of WASHINGTON, with the TOMB containing his sacred REMAINS, may be kept in a suitable and proper state of preservation, and no longer left subject to the uncertainties and transfers of *private estates;* and that they and their posterity may have a legal and indisputed right to visit, without restraint, that place, hallowed, as it is, by every patriotic association and emotion that enchain the hearts of Americans.

"*To the honorable the Senate and House of Representatives of the United States of America in Congress Assembled.*

"Your memorialists, citizens of the United States, living in the full enjoyment of the priceless liberties, mainly achieved by the indefatigable and unrequited services of Washington, respectfully represent; that it is their fervent wish and sincere desire to see, without further delay, the requisite appropriation made, and the necessary measures taken, by your honorable bodies, to purchase 'one hundred and fifty acres of Mount Vernon, lying between parallel lines, and extending from the Potomac river to the Alexandria road, so as to include the buildings, grounds and tomb of Washington, agreeably to the terms specified in a letter from John A. Washington, Esq., to Hon. G. M. DALLAS, vice president of the United States, Hon. JNO. W. DAVIS, late speaker of the United States House of Representatives, Hon. REVERDY JOHNSON, Hon. J. T. MOREHEAD, United States senators, and others, dated at Mount Vernon, December 22, 1846, and naming the sum of one hundred thousand dollars in U. S. six per cent. stock, as the satisfaction for which said invaluable premises will be transferred to the General Government by the present proprietress, Mrs. JANE C. WASHINGTON.

"Your memorialists further represent, that in common with their fellow citizens, they entertain the most profound reverence and veneration for everything connected with the memory of the 'Saviour of America;' and that by consummating the aforesaid purchase, the slanderous charge, accusing republics of being invariably ungrateful, will be refuted, and a small instalment made towards liquidating a portion of the debt of gratitude due to his memory from the favored citizens of this country.

"They therefore request that action may be promptly taken to carry out and consummate the object set forth in this memorial, that they and their descendants may enjoy the right and privilege of visiting, unrestrictedly, the venerated GROUNDS, MANSION, and SEPULCHRE OF WASHINGTON, which, at present, are liable to the various casualties, uncertainties and transfers attendant upon all private property in the absence of laws of entailment and primogeniture.

"All which is respectfully submitted."

We hope this movement will be entered into by all good patriots throughout the country. There is no spot in the world which will hold so high a place in the affections of after ages as Mount Vernon; consecrated by the moral labors, the serene enjoyments, the life, the death, and the grave of WASHINGTON.

Our correspondent informs us, that if the plan is carried out, it is proposed to make in the park at Mount Vernon a complete collection of American trees. This would increase the interest of the grounds. The great point, it appears to us, however, would be to restore, maintain, and carry out, as far as possible, the condition of the estate as planned and desired by its great owner.

MAGNESIAN LIME INJURIOUS, ETC.—I have been a deeply interested reader of thy journal, and have studied, with particular interest, those articles on manures in the late numbers, particularly the leader in the January number, and the one on "Special Manures for Fruit Trees," in the last. But where is the point of safety, to a learner, when the masters in fruit culture disagree? A few days since I had the pleasure of a talk with the intelligent president of our horticultural society, JONATHAN BALDWIN; in the course of which, he remarked, "whatever you do, don't lime your apple orchard; for it is certain death to your prospect of fruit;" and, to fortify his declaration, he referred to several orchards which had been ruined by the use of lime.

I believe he spoke without making any exceptions to the bad effects of lime; still, he may have overlooked one fact, which possibly will reconcile all apparent differences, for explanations of which, has been the chief motive of my writing. His farm is a fine productive one in the "Great Valley;" soil, a rich, deep, mellow loam, overlaying immense beds of limestone, of quality, if I mistake not, very highly impregnated with magnesia. In regard to magnesia, it abounds in the lime of some portions of this valley, while in other portions very little can be detected. These considerations suggest two inquiries, viz.:

1st. How are the mass of us, unscientific farmers, to decide where it will do to apply lime to orchards, when we are told that its application does so much for the apple on the "Pelham farm" and other localities,—while it works destruction in other situations?

2d. Why is magnesian lime, or lime highly charged with it, less adapted to the wants of the apple, than lime less marked with its presence?

I am much obliged for thy answers to some of my queries in the last number, and thought them very satisfactory; since which, however, I have had *opposite counsel on one point*. I have just received a letter from a distinguished cultivator of New-York state, of whom I had also made the inquiry; and his counsel is, not to remove the stock until the bud has taken, in "spring budding." [By cutting off the stock, we did not mean to cut it close down to the inserted bud. Cut it *one or two buds* above; leaving those buds to help draw up the sap till the new bud has taken. ED.]

One or two matters further. I have been not a little surprised, that in thy "Fruits and Fruit Trees" no notice has been taken of several varieties of the apple, widely disseminated in this state; or that some of our pomologists have not brought them to the notice of the readers of the Horticulturist.

There are the *Knowle*, *Early Redstreak*, and *Caleb* apples, highly valued here, either because they are good early varieties, or there is nothing better to contrast them with.

The *Gibbons Smathehouse*, an autumn apple, as popular in the eastern counties of this state as the Porter seems to be in New-England. Then, there is *Smith's Cider*, a popular market, winter fruit; the *Tulpehacken*, or *Pound* apple, large and fine, much resembling the Fallawater both in tree and fruit; the Indian apple and Betsey's Fancy, (or White Vandevere,) both highly productive and great keeping varieties. These last, although decidedly fine, are as yet but little disseminated.

J. BALDWIN informed me, that so fine were some specimen Smathehouse considered, which he exhibited last autumn at the horticultural meeting in Philadelphia, that they were boxed up and sent to some of the friends in Boston for their opinion and judgment. [Shall be glad to receive specimens of these fruits. ED.]

I am delighted with thy leading article in the last number on "School-Houses." It has more than a surface significancy; which an inattentive or careless reading might not detect. It is profoundly philosophical, and instils a loftiness of sentiment which, if lived out practically, would make our country, in *truth*, a land of liberty. Thine respectfully. *J. F. Chester co., Pa., March 12th*, 1848.

REMARKS.—Mr. BALDWIN's opinion, so adverse to the almost universal testimony of those who have used lime for apple orchards, is easily explained, if he or his neighbors have been in the habit of employing *magnesian*-lime upon their land.

This, as we have ourselves found by experiment, is decidedly injurious to many kinds of vegetation. The reason is supposed to be this: When a limestone, containing much magnesia, is burned, the lime, very speedily after exposure, loses its caustic property, and becomes a *carbonate*, in which state it is a beneficial manure. But magnesia does not readily become a carbonate, and retains its caustic quality for a long time, (absorbing carbonic acid very slowly;) and is thus injurious to vegetation, when it is mixed and applied with lime, which itself is completely air-slaked (i. e., *carbonate* of lime,) and beneficial.

It will be remembered, that in our last we recommended *oyster-shell lime*, as always pure, and cautioned our readers against *magnesia*. Most of our limestones contain very little magnesia, and are excellent manures,—but there are exceptions; as some of the Trenton limestone, in this state, has been analyzed, and found to contain 24 *per cent.* of magnesia. This would be highly injurious to orchards.

As most of our states have been geologically surveyed, the analyses of the different limestones will be found in their geological reports; and if a farmer is about to use a lime, which has not been tried and found serviceable as manure, it would be well for him to ascertain by reference to such reports if the lime is free from magnesia; (that is, does not contain more than 6 or 8 per cent.) As a common test, we may mention that magnesian limestones feel soft to the touch, will not scratch glass readily, dissolve *slowly* in acids, and leave a *creamy* solution.

As confirmatory of Mr. PELL's practice in liming highly, to grow so successfully that rather difficult apple—the *Newtown Pippin*, we may quote the following note, sent us by Prof. KIRKLAND of Cleveland, one of the first pomologists in the west:

"*Newtown Pippin.*—Trees thrive well only on very rich soil, *containing lime*. On soils destitute of lime, a bushel or two should be spread over the ground under the tree; and some animal manure should be added. It will well repay the expense and trouble."

NEWARK CIDER ORCHARDS.—We learn from a fruit grower, who has just been in the neighborhood of Newark, N. J., once so celebrated for its large production of the finest cider, that many of the orchards of their favorite apple, the *Harrison*, have almost entirely failed to yield good fruit within the last few years. The trees are yet apparently healthy, but they bear but small crops; and the apples are small, knotty and imperfect. He also observed, that it was the opinion of many orchardists there that this variety was on the decline.

We believe the cause of the late unproductiveness of these Harrison orchards is very easily explained. The trees, mostly planted in a light soil that has long been cultivated, have exhausted so much of the lime and potash from the soil where they are growing, that there is no longer enough of these substances in the soil to supply the necessary materials for the production of large crops of fair fruit as heretofore. If the orchardists there will give their orchards a heavy top-dressing of pure lime and ashes, we think they will find them speedily returning to a sound and productive state. Those who doubt may first try the experiment on a small scale immediately, by applying a bushel of pure lime and a bushel of leached ashes to every full grown bearing tree,—spreading over an area of surface as large as the branches cover, and digging it under the surface two or three inches. These extensive orchards have hitherto been a source of large income to the proprietors; and it is, doubtless, only their soil, and not the sort of apples cultivated, which has "run out."

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TRANSACTIONS OF THE OHIO FRUIT CONVENTION.—This is an interesting pamphlet of 46 pages, giving a detailed account of the nurserymen and fruit growers' convention, held at Columbus in September last.

This convention assembled chiefly for the sake of comparing fruits from different portions of the state, ascertaining the correct names of many miscalled varieties, making known valuable new fruits, and adding, as far as possible, to the stock of knowledge on this subject. Mr. C. SPRINGER, of Muskingum, was called to preside, and Messrs. ELLIOTT of Cleveland, and BATEHAM of Columbus, appointed secretaries. The sitting commenced by their passing the following resolution:

Resolved, That in classifying the various fruits brought to this convention, we adopt the book known as the "Fruits and Fruit Trees of America, by A. J. Downing;" and that we recommend to cultivators the adoption of this authority as the best hitherto published.

The report, drawn up, we believe, by Mr. ELLIOTT, is full of interesting pomological facts,—especially, however, of local value; and is illustrated by several outlines of the new fruits presented. *Apples* formed the larger part of the exhibition; and their merits are chiefly discussed in this report. We select a few details, which will interest our readers generally.

"*Summer Rose Apple.* Mr. *Elliot* regarded it as *the* apple, if only one summer apple was to be had, and that no private garden should be without it. It is a long time in eating."

"Belmont, Waxen or Late." Considerable testimony is given to prove that Dr. KIRTLAND was in error in considering this fruit as the *Waxen* apple of *Coxe*. (See our work—*Waxen Apple*.) On the other hand, in a copy of our *Fruits*, sent us lately by Professor K., we find the following note on this fruit:—"After all that has been published by Mr. SPRINGER, we believe our statement, as to the origin of this fruit, to have been correct. It was NESSBY's statement, made to Judge CONRAD about the year 1806. That it is the *Waxen* apple, was a suggestion of COXE's father to me in 1824, while I was in Burlington, N. J." After this decided difference of opinion, the two fruits must be compared; and there will, perhaps, be an opportunity of bringing them together the coming season. We may add, regarding its merits, the following from this report:—"the unanimous expression of all the convention was such as to class this a variety to be desired in every collection; being, in all sections, first rate."

"*Newtown Pippin.* Messrs. LATHAM, WOOD, and others remarked, that 'this variety was fine on a limestone clay soil; but on sandy soil, poor.' Mr. ELLIOTT remarked, that it was always inferior on sandy soil, and good in a rich deep clay soil. To have perfect success with it, *lime*, in a soluble state, is wanted, so that the roots can take it up."

"*Putnam Russet.* A large number of specimens of this fruit, and also of the *Roxbury Russet*, were exhibited and compared, and various letters read regarding the origin of the variety, &c.; and 'there was not a dissenting voice,' that this fruit and the Roxbury Russet are identical;" (as we stated our opinion to be, on first comparing the two a year ago.)

Priestly vs. *Bartlett Apple.* Mr. ELLIOTT is under some error regarding this latter name, in quoting us as authority; as we are not acquainted with any apple bearing the latter title. Perhaps it is a typographical error.

Baldwin. It is quite remarkable that this apple, so hardy, productive and popular here and in New-England should, upon the Reserve lands of Ohio, fail from the "bitter rot."

Rawles' Jannet. "Is highly productive, and is becoming very popular along the valley of the Ohio." Mr. ALLEN, of Ky., thinks it "unsuited to the north, as it requires the longest season of a southern climate to mature fully."

Nonsuch. (*Old Nonsuch*, of Mass., *Red Canada*, of western N. Y.) "It is much grown in counties near Cleveland; is one of the *most valuable* of apples,—large, fair, handsome, juicy, rich, tender, great keeper, good bearer; decidedly among the very best of apples."

Among the new apples described, and highly recommended, are the following: *Early Pennock, Willow, Springer's Seedling, Well's Apple, Red Ashmore, Western Spy, Phillip's Sweeting*, and *Pryor's Late Red.*

The convention closed by forming a *State Fruit Committee*, to meet annually, and by adopting the *Rules of American Pomology*, as passed by the Massachusetts and other horticultural societies.

Altogether, this first convention has evidently been productive of much good in Ohio; and there are

many interesting pomological facts in this report which we have not space to notice, but recommend the pamphlet (which may be had at the office of the Ohio *Cultivator*,) to the notice of pomologists, and especially to western fruit growers.

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HORTICULTURAL DINNER AT BUFFALO.—The president of the Buffalo Horticultural Society, WM. R. COPPOCK, Esq., entertained a large party of horticulturists, from various portions of the state, at his residence in Buffalo on the 1st of March. After dinner, the guests resolved themselves into a kind of *home pomological convention*, and sat in judgment upon the various productions of the garden, which were brought from various localities for that purpose. About seventy varieties of apples—many of them of the best standard varieties—were exhibited, tasted, and their popularity tested by a vote. Messrs. ELWANGER & BARRY, of Rochester, presented 27 varieties. Mr. WATTS, of Rochester, 15 varieties, and several others a smaller number of sorts. "The *Esopus Spitzenburgh*" was—as we learn by the Western Literary Messenger, by a preliminary vote, *unanimously* decided, taking into consideration all its qualities, the *ne plus ultra* of apples; and as the specimens approximated in excellence to that variety, they stood, in the judgment of the company. Among those rated "No. 1," we find Baldwin, Newtown Pippin, Swaar, Vandevere, Northern Spy, Golden Russet, Roxbury Russet, Herefordshire Pearmain, Pomme Gris, Yellow Belleflower, Westfield Seek-no-further, Pownal Spitzenburgh, and Rhode-Island Greening, (the latter it was remarked, "does not always hold, in western New-York, the colour and high flavor of the land of its origin." Still, it is a very popular apple, and passed as No. 1 by a *bare* majority.) A very fine new apple, classed No. 1, was presented by Mr. EATON, and called the *Eaton apple*.

Specimens of the *Buffalo* seedling *Pinkeye potatoes*, from the originator, Rev. N. S. SMITH, of Buffalo, "were served up at dinner, and found to be unsurpassed in quality."

L. F. ALLEN, Esq., president of the State Agricultural Society, presented some excellent "Stilton" cheese, made by Mr. H. Parsons, of Canada West.

Altogether, Professor COPPOCK'S horticultural dinner was, we learn, a most agreeable one; and serves, among other indications, to show how the gardening interest is making progress in western New-York.

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HORTICULTURE IN ALABAMA.—Nothing gives one a more definite idea of the extent and variety of soil and climate of our Union than a comparison, at this season of the year, of accounts of the season in different parts of the country. For example, we have to-day received letters from Maine and New-Hampshire speaking of snow, and two feet of frost in the ground there, while the following extract from the letter of a zealous amateur in Mobile, dated *March 10th*, speaks of a *crop of young peas*, and shoots 8 or 10 inches long already.

"I think the climate and soil here will do very well for pears, on either pear or quince stocks. I have about 500 young trees planted, embracing nearly all the finest varieties; over 200 of them are on quince stocks; these latter show, at this time, a fine new growth of from 8 to 10 inches, and some of the trees have young pears upon them, now going on finely. I suppose this sounds strangely to northern ears, where I presume all fruit trees still have the look of drear winter.

"I have in my young orchards about 260 plum trees, 160 cherry, 100 apricots, and about 1400 peach and nectarine trees, besides some of all the other fruit trees; and I am resolved to give them a fair trial. I have also about 250 apple trees, among which are 12 of "*Early Joe's*;" these latter I had from ELWANGER & BARRY of Rochester, N. Y., with 100 pears on quince stocks; and *every tree* is living and doing well.

"I have some doubts regarding the success of plums, cherries, and apricots here. The northern peach trees do very well here; and, although they are transferred to this warm climate, some of *their northern habits stick very closely to them*. They bloom at least from two to three weeks later every spring than our native peach trees, which almost entirely preserves them from the spring frosts * Your friend, *R. H. Mobile, Ala., March* 10, 1848.

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HORTICULTURE IN MISSOURI.—The St. Louis Horticultural Society, judging from reports of its meetings which reach us, is already exerting an admirable influence in that state. The report of the premiums for 1848, made at the meeting of Jan. 8th, and of the proceedings at that time, is highly creditable to the society. The culture of vineyards, and the production of excellent light wines, appears fast becoming a matter of importance there as well as at Cincinnati. Three specimens of "Catawba wine" were exhibited at the meeting. Specimens of wine were presented by Mr. MALLINKRODT, made from both Ohio and the Catawba grapes: "the wine of the Ohio grape resembled Claret,—that from the Catawba, the best Hock." We observe that the society offers, this year, a premium of $30 for the best gallon of native wine, and $20 for the second best; evidence to be given that not less than a barrel of the same quality has been produced.

A very spirited address was made by President THOMAS ALLEN, Esq., from which we quote the following interesting extract; premising the growth of the finest vegetables at St. Louis, especially melons, etc., *almost* without cultivation, surpasses what is produced in England with the greatest skill of the gardener, and with a lavish outlay of money:

"There are very few vegetables or melons, desirable for the table, which do not succeed well here, in the natural unexhausted soil, with even the most ordinary cultivation. The soil, however, would be a rare exception to the general character of the surface of the globe, did it not require, at length, a return of some of the elements we take from it. Vegetable physiology and chemistry, with the light of the wonderful discoveries made, of late,

* An interesting fact, which we beg our correspondent in Ohio, who doubts the influence of one climate on varieties having their origin in another, to make a note of. ED.

in those branches of science, will enable us to determine what those elements are, and how to apply them; so that, when the necessity arises, we may, perhaps, be able to feed and fatten, as it were, our vegetables as we do our cattle. But, at the present, our vegetable family does not seem to require the especial attention of associated effort; and some of our members would, probably, be inclined to deride an offer of a general premium list for vegetables, as being nearly as supererogatory as offering a reward for spontaneous productions. Among such productions, there would seem to be no demand for a horticultural society; as such institutions thrive most vigorously where nature is the most reluctant. Amid the polders of Flanders, the highlands of Scotland, or the bleak coasts of Massachusetts, we have conspicuous examples.

"There are subjects enough, however, even in this prolific country, to occupy our attention, demanding investigation and experiment, and worthy of discussion. Highly favored as we are, yet we are not sufficiently so to be afforded any excuse for indolence. Horticulture, in its highest sense, demands more knowledge than simple agriculture. We have to deal with a greater variety of objects and elements, and in a more minute degree; and it would be reprehensible in us to remain behind the great improvements, and ignorant of the wonderful discoveries, which are exciting the attention of the world. There are good reasons, therefore, for both mental and physical industry. Fruits will not grow spontaneously, or without care. And if there are those who are of a contrary opinion, and, carelessly thrusting their trees in the ground, think they have nothing more to do but to pluck their fruit, as it ripens, they will return from their contemplated harvest some day, convinced of their mistake. They will find their apple trees and quinces cankered and bored—their pear trees blighted—their heart cherries all dead—their peach trees eaten by worms—their plums, apricots and nectarines all fallen before they were ripe—their gooseberries mildewed—their grapes rotted on the vine. Then they will wonder what can be the causes, and what the preventives, of all these disastrous results; and will, perhaps, inquire, whether they know anything about them up at the horticultural society? And such inquiries it is proper for us to be prepared to answer. We should prosecute our experiments and investigations, and continue our discussions, until we are thus prepared. Let the experiments go on in the field, and discussion at our monthly meetings. Let us aim at the highest degree of perfection. Discarding and uprooting all the meaner sorts, let us have none but the best. Let us cull the old orchards, plant new ones, plant vineyards, make wine, and adorn our gardens and lawns with the noblest products of the forest, and with the choicest shrubbery and flowers; so that it may be said of us, as of Pomona,

> 'None taught the trees a nobler race to bear,
> Or more improved the vegetable care.'

"We have not to look to the old world, nor to the older states, exclusively. Some of the products of our own woods and prairies are among their favorite objects of domestic culture. The best wine grapes, for American cultivation, it seems likely to be acknowledged, are derived from the native wilds of our country. Some favorite plums, always resisting the curculio, and always full bearers, are also indigenous here. We live upon the borders of vast botanical fields, yet almost unexplored. It may be ours, therefore, to discover and introduce new and valuable sorts. New and superior varieties will continue to come into existence by hybridizing and planting. And we shall ultimately settle upon ample varieties that are best suited to our soil and climate. A list of these varieties ought to be commenced by our fruit committee, and enlarged as experience may justify. And individuals should be invited to bring to our notice any new fruit of respectable quality, found springing from seed casually dropped, or discovered in the forests.

"Thus carrying forward our action into all the various ramifications of horticultural art, we shall be most acceptably and usefully fulfilling the object of our institution. We shall see, gradually, a new and more refined taste excited, which shall have an ameliorating and domesticating effect upon the hearts of those who imbibe it; exhibiting itself in attachment to contented homes and moral habits; in discrimination between beautiful plants and ordinary weeds; between choice fruit and the meaner sorts; between ugly shade trees, and those of beautiful forms and cleanly habits; between dwellings of mere bricks and mortar, bleak and desolate, and those which show at once, by their sites and their embellishments, that they are the abodes of the refined and the happy. We shall thus contribute to the ultimate beauty, health and happiness of our city, by encouraging the reservation of public squares, and the planting of suitable trees for shade and ornament; by improving the markets; by inducing a taste for rural architecture and decoration in the suburbs; and even the public cemeteries, instead of being merely the cold, repulsive and deserted abodes of the dead, shall invite us to their 'paths of pleasantness and peace,' where sweet memories of the departed shall be mingled with the songs of birds and the perfumes of flowers.

"In these agreeable pursuits, lending our small contributions to promote the general happiness, we are also working out for ourselves the reward of contented homes, serene tempers, healthy bodies, long lives, and public respect. We are moored in that haven to which all men, at one time or other of their lives, seem instinctively to long for, and to which warriors and politicians, satiated with honors, and professional men and merchants, cloyed with wealth, or tired and sick of more busy scenes, would all fain retire. Let us, therefore, not only be contented, but glory in that mode of life, which has been 'the inclination of kings and the choice of philosophers,' and rejoice, that ours is that

> 'place,
> Chosen by the Sov'reign Planter, when he fram'd
> All things for Man's delightful use.'"

.....

THE PEAR BLIGHT AT ALBANY.—In your comments on my letter, in the last Horticulturist, treating of the pear tree blight, you refer me to Dr. HARRIS' article on insect-blight, to enable me *more accurately* to judge how far insects must be held ac-

countable for the blight in my trees. I think I am pretty well *acquainted* with the habits and customs of the *Scolytus pyri*, and I *know* pretty well, too, how much of the disease to give them credit for; and I am certainly not a little surprised that you should have given me that reference, with my four cases before you. To combat Mr. Ernst's position, that "the idea is mostly abandoned that any form of blight is caused by insects," I did not choose to refer him to the ravages of the Scolytus pyri, for you had done that in the December number; but I undertook to inform him, and others, that there was another insect at work, destroying our trees, and I referred to the four cases to prove it. That I discovered the insects on the Bartlett limb only, is true! but from evidence satisfactory to my mind,—as the peculiar appearance which the disease induces being apparent on the small end of the limb on which the vermin were—the presence of the nauseous odor which the blight affected limbs always have—when the end of the stem was cut off, and the same odor being very strong when the vermin were crushed between the fingers—I am convinced that that species of vermin stung, and injected a poison into the tender young wood of all the cases noted. Those cases, in my opinion, could no more have been caused by *Scolytus pyri*, (which lays its eggs one year, and the effects of which—after its transformation into grubs and beetles—is not seen until the next,) than by either frozen or scalded sap; for you must remember, that it was on the extreme end of the *new* shoots that the disease was first seen. It may be asked—if the species of insect, noticed on the Bartlett branch, poisoned the three first trees noted, why were the vermin not seen on those trees? To this I would reply,—the small size and the shy habit of the animal is probably one reason; and another,—being unsuspicious of such cause, the trees were not examined very early, in the cool of the morning, when they might have been found chilled, as they were on the Bartlett tree.

To my mind, you do not satisfactorily answer the question, of—"why is it that trees of a bearing age, as a general rule, are the only ones affected by the disease, which first shows itself on the body of a large branch, or the trunk of a tree?" You say, that "a mild winter, with sudden changes, is more fatal to a tender-barked tree than one of uniform low temperature." That, I will not dispute; but to my mind, it does not account for the peculiar effect of this disease on the older, in preference to the younger trees; for adjoining, and indiscriminately mixed among the large diseased trees, were small ones—ten to one—not at all affected by any other disease than that caused by the insect alluded to above. The fact, too, that you have seen hundreds of young two year old trees killed down to the ground by what you denominate frozen sap-blight, does not, to me, any more satisfactorily account for it. I am quite well aware, as I informed you in my last,—for I have had numerous cases,—that the young trees are frequently, as it were, burned black by the effect of a hot sun on the frozen bark,—but this is not the blight alluded to; *this* effect is noticed at the time; *that* peculiar disease never, until the tree is in leaf, as far as my observation goes. Again, the bark of the young tree, when injured, never puts on the peculiar appearance that the diseased bark of the older tree does; the bark of the young tree appears black and shrunken immediately; but that of the older one goes through regular stages of disease.

You say that your observation leads you to coincide with Mr. Ernst in excepting the Seckel, usually, from its attacks. I certainly hope that the public generally may be able, from experience, to arrive at the same conclusion! You account for the appearance of the disease in my Seckels, by saying that—"When a disease occurs in a neighborhood, in a more than usually malignant form, individuals usually exempt often fall victims to it." Unless you wish us to consider that you intend to be understood as referring this disease to a malignant cause, that axiom will not apply; for if the cause, without being malignant, was so severe as to injure and kill trees *not* usually liable to its attacks, would it not, in all probability, have attacked all that *were* usually liable to it also? But such was not the fact. Bloodgoods, Easter Beurres, Duchesse d'Angoulemes, and many other varieties, were killed or materially injured, while trees of the same varieties, under similar circumstances, in the same rows, only fifteen feet apart, were not at all injured. Seckels were no more exempt with me than any other varieties; and I perceive, by a late Genesee Farmer, that Mr. Barry, its horticultural editor, has had like experience. I am certainly sorry that we cannot except Seckels here from the disease! And I only mention the fact to guard growers of the pear; for should they, without abundant proof, take it for granted that this variety is exempt from the disease, and go to planting extensively, they might by-and-by suffer loss therefrom.

The fact is, that this particular form of blight—that which first appears on the trunk or body of a large branch—is of a character so peculiar that I do not intend, without further observation, to commit myself to any particular theory for its cause. None of those heretofore advanced are satisfactory to my mind. We can, as yet, only treat the disease as we do epidemics when they come upon us "unseen and unheard;" but we may, by experimenting with limewash or other innocent articles, sooner or later, learn what will prevent its recurrence, (if it is not a malignant epidemic disease,) and consequently infer the cause of it. Yours very truly. *Herman Wendell. Albany, February* 4, 1848.

P. S. *March 6th*, 1848.—The only reply which I consider necessary to make to that part of Mr. Ernst's letter, in the last Horticulturist, alluding to my cases, is to refer him to the above article, in which he will perceive, that I attribute the cause of the injury to the two trees mentioned by him, viz., the Bergamot d'Esperen and the Colmar d'Aremberg, to the sting of the vermin there described, and the injection by them of poisonous matter into the tender extremities of the new branches, and *not* to attacks of the Scolytus pyri. *H. W.*

Remarks.—Dr. Wendell's observations and opinions, on this subject, are so totally different from our own, that we are unwilling to comment any further upon them. We print his letter above verbatim; and since we have lately stated repeatedly our own views on this disease, we leave the matter

before the public. Cultivators of experience will always test opinions, whether given by our correspondents or ourselves, by their own experience and observation; and on such an unsettled question as the pear blight, there will naturally be some disagreement. Ed.

....

The Orchardists' Saw.—I notice, in the January number of the Horticulturist, a description of a new grafting tool. I have myself been planning some improvement, of a similar kind, and am now having made for me an article which I propose to call "The Orchardists' Saw."

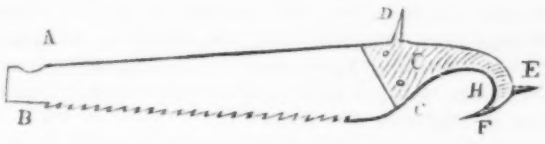

Fig. 57.—*The Orchardists' Saw.*

This saw is to be used for pruning, and more especially for engrafting. The saw-blade is about one foot long. A, represents a thin curved edge for cutting open the stock, instead of splitting it, as is usually practiced. B, is the place for striking with a hammer, when driving the cutting edge, A, into the stock. C. is the handle of the saw, made entirely of iron. D, is the wedge for holding open the stock when inserting a scion. E, a narrower wedge for small stocks. F, a hook to hang the saw upon a limb of the tree. The wedges, D and E, may be driven with a hammer by striking on the inside of the handle C, at C or H.

It will be perceived that the additions to this saw for engrafting do not in the least interfere with its use for pruning. The curved cutting edge, A, is much better adapted to our wants than any kind of *splitter*, whatever, can be; as it will make a clean smooth cut, through bark and stock, without any bruise or slivers. Indeed, my orchardists' saw seems to me to be "*the identical thing*;" and, as you say of Mr. Foote's *stock-splitter*, I "generously place the invention at the service of the public." Truly yours. *Geo. Jaques. Worcester, Mass., January 10th*, 1848.

....

Osage Orange, Buckthorn, &c.—There are two or three practical matters on which a few hints would be very acceptable to me, and perhaps to some more of your readers.

Is the Osage Orange found sufficiently hardy to endure the winter in most situations, as a hedge plant, as far north as forty degrees?

What is the best season and manner of sowing the seed of the Osage Orange and the Buckthorn?

Also, on raising seedling roses for stocks. and the proper season for budding them. Yours respectfully. *A Subscriber. Washington, O., Feb.* 23, 1848.

Answer.—It is impossible to speak definitely respecting the hardiness of any plant, as measured by degrees of latitude; for the altitude of the country, the forests, lakes, &c., greatly modify the temperature of particular localities.

But we can give our readers a safer guide, by comparing the hardiness of one plant by that of another generally known and cultivated. We say, then, the *Osage Orange* will be found perfectly hardy as a hedge plant, and make a most efficient hedge, too. wherever the *Isabella grape* grows and matures its fruit well in the open air. We say, *as a hedge plant*, because experience has shown that any tree, somewhat tender, becomes much more hardy when it is forced to make short-wood, and to assume the dwarfish habit of a hedge.

Both the Osage Orange and the Buckthorn may be sown in the spring or autumn. In the former, soak the seed in hot water twenty minutes before planting them. They are both as easily grown as peas, and may be sown and raised the first year in drills, very much in the same way. Very full and complete directions for raising hedges of both these plants, beginning at the seed bed, will be found in the February No. of the Horticulturist for 1847.

The seeds of *roses* should be gathered in the fall, washed clean, and kept in boxes of *damp sand* in a cellar till spring. They must then be sown in rich light soil. They are budded in July. Ed.

.....

Annual Vines.—Some of your readers who want to cover trellises rapidly, or conceal unsightly objects, may be glad to know what are the best *annual* vines for this purpose. Certainly one of the very best is the Blue Cobea, (*Cobea scandens*,) which may be had of most of the florists, in the spring, in small pots. Planted in any good, rich soil, this climber will often grow 30 or 40 feet in a season, making quite a display of foliage, and bearing an abundance of large, purplish blossoms, much like those of the *Canterbury bell*. Next, is that old favorite, the *Balsam Pear*. The seeds may be had at the seed-shops; and if planted three or four inches apart, in good soil, about the middle of April, a large trellis, 15 or more feet high, may be covered by midsummer; and in the autumn there are few things more curious or ornamental than the singular fruit of this vine, which bursts open of itself when ripe, and displays a rich orange centre.

The *scarlet* flowered morning glory, with neat foliage and small bright blossoms, like those of the Cypress vine, is the prettiest of all the convolvulus tribe that are easily grown from seeds. I ought not to forget the Purple Maurandia (*M. Barclayana.*) a perennial vine that may be had at the green-houses; and which, put out in the border with a little frame to which to attach its tendrils, will be loaded with its fine, rich, purple. foxglove-like blossoms every day in the growing season. There is a species, also, with *pink* blossoms, (*M. lophospermum,*) more vigorous in its habit; "Sweet Peas," everybody is familiar with. Round a cottager's house, I like nothing so well as to see the *hop-vine* running over a rustic arbor; and the prettiest and gayest of cottage annual vines is the *scarlet-runner*, (bean,) which gives at once pretty effect and plenty of good food. *Ipomea Learii;* this large, deep blue convolvulus has now become common enough to be afforded cheaply at this season in the year in pots; and there are few climbing plants which equal it in splendor, every morning, from midsummer to November. It grows in rich soil amazingly fast. *An Amateur Florist. New-York, March*, 1848.

Salvia Patens.—This Salvia, with large flowers of the finest *ultramarine blue* perhaps to be found in the vegetable kingdom, is a very fine plant for *budding-out*, to form a mass of colour in the flower garden. By pegging down the shoots as they grow, the dwarfish compact habit will be attained, so necessary to good effect in flower gardens arranged in this way. Yours, *An Amateur Florist. New-York, March*, 1848.

.....

Culture of the Blue Commelina—(*Commelina celestris.*)—This is one of the loveliest of all blue flowers; and I am surprised, considering its easy culture, that it is not more frequently seen in our flower gardens.

It is properly a tuberous perennial,—each plant with a cluster of tubers like those of the dahlia in miniature. These tubers are as easily preserved as those of the dahlia; and when the roots get large, the plants put out in May in the open border, and produce an uninterrupted series of flowers the whole summer and autumn.

The Commelina is so easily raised from *seeds*, (which may be had of all our leading seedsmen,) that any person may soon get a good stock of it. Besides, if sown pretty early, say the middle of April, in a warm border, it comes into bloom like an annual the same summer. It may then be taken up at the commencement of frost, and the roots put away in a box or pot of sand, or coal ashes, and placed under the green-house stage, or in a cellar free from frost. *Ibid.*

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The Gladiolus.—This is one of the finest bulbs in the world for the open border in this country. The common Gladiolus, or "sword lily," (*G. communis,*) with purple flowers, and the green striped, or Parrot Gladiolus, (*G. psittacina,*) are well known hardy border flowers. But the finer new hybrid species and varieties, so well known in Belgium, (where they cultivate above 40 sorts,) are very seldom seen in the United States, except in the gardens of the largest collectors.

They are well worthy of more attention. The roots of these new sorts are very easily preserved through the winter in a cellar or green-house; and nothing can well be more gay, brilliant or delicate than the colours of many of the finer sorts,—*G. cardinalis, gardavensis, roseus*, etc., with all the shades of flesh colour, rose, pink, deep scarlet and purple, in their long spikes of blossoms. They also come into bloom at midsummer, when there are, comparatively, few flowers in our borders. Good, rich, sandy loam, and an open exposure, will, in this climate, grow them to our great satisfaction. *Ibid.*

....

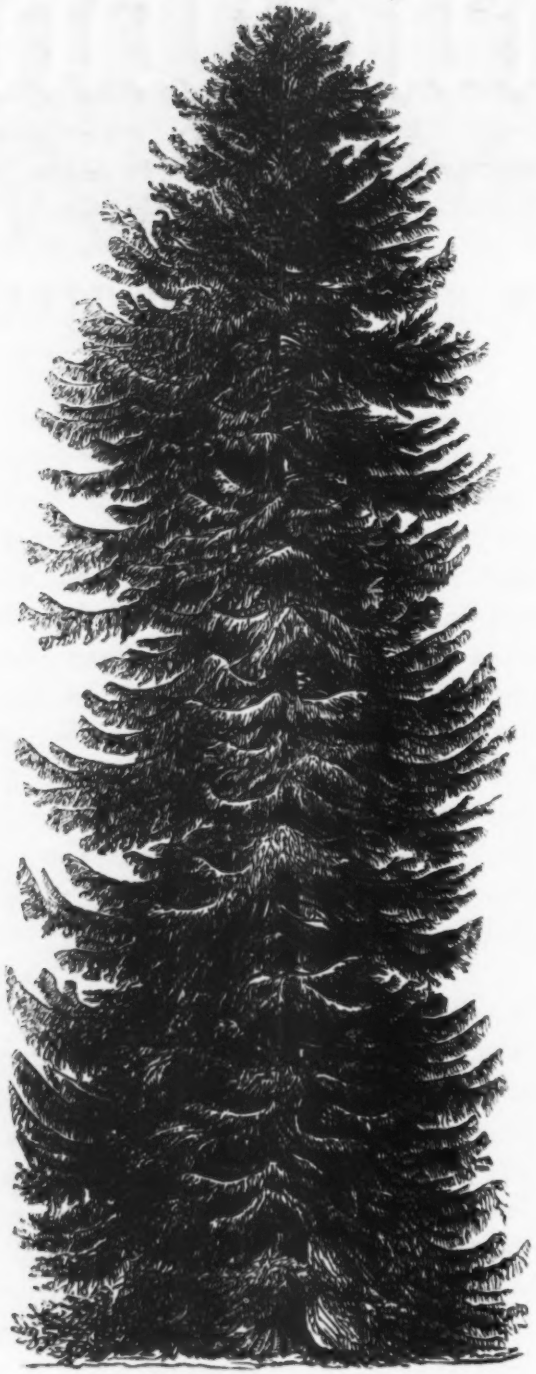
Hardy and Showy Annuals.—A correspondent in Maryland desires a list of hardy and showy annuals "that will grow with little care, and produce a gay effect in the flower garden."

We recommend the following species: *Collinsia bicolor, Collinsia grandiflora, Phlox Drummondii, Nemophila insignis, Erysimum Peroffskianum, Hibiscus Africanus, Schizanthus pinnatus, Coreopsis tinctoria, Bartonia aurea, Portulacca splendens* and *Thellusonii, Malope grandiflora, Convolvulus minor, Gillia tricolor, Eutoca viscida, Iberis umbellata, Alyssum maratimum.* To these may be added the fine Double German Asters, Double Balsams and Double Dwarf Rockets, to be had of most of the seedsmen.

.....

Martynia Fragrans.—This is a new annual, well worthy of cultivation. We received some seeds lately from a friend, with the following account of its growth. Ed.

It is considered very difficult to raise this annual in England; but here, in our genial sunshine, it grew to a most prodigious size. A young friend in London sent me, last March, a few seeds. Knowing it required active heat in starting, I sowed the few seeds in a pot about St Patrick's day, and kept them in the dahlia propagating house, in a temperature of about 80°. In about two weeks one seed came forward, (and the only one;) this "lone star" I steadily watched and helped along, with a couple of shiftings into pots, until by the 10th of May it was a strong showy plant. At this time I turned it into the ground, in a rich warm spot, and never did I before see such rapidity of growth, especially in spreading; it sent out lateral branches *five feet* in length, but never attained more than three feet in height. The whole habit is very robust; the foliage thick, but more soft and velvety than *M. proboscydea*, and flowering, in immense profusion, from the middle of July till stopped by frost in October. No other Martynea can compare with this fine variety; the flowers are larger than the *Gloxinia*, which they indeed much resemble, only that they are thickly set on a spike, and are of a delicate rosy lilac, blotched and shaded with bright crimson, with an agreeable odor. I consider it one of the greatest acquisitions to our annuals, which are seldom of any size, and for the most part, of late, the novelties have been of a trifling character. This is a gigantic addition. I have raised from this one plant a fair quantity of seed, which I have sent to Messrs. Thorburn & Co., in John-street. I forgot to say that the seed capsules for a month before ripening add much to the appearance of the plant. When this plant becomes more plentiful, I have no doubt the green pods will make *a pickle* quite equal to the *M. proboscydea* capsules, which are much used for that purpose by many good housewives. Yours, *T. Astoria, Long-Island.*



THE NORWAY SPRUCE FIR.

Full-grown tree at Studley, 132 ft. high; diam. of the trunk, 6½ ft.; and of the head, 39 ft. [Scale 1 in. to 24 ft.]

[Hort: May, 1848.]